# Dental Digest

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## ANTERIORS

UNIVERSAL DENTAL COMPANY · 48th at BROWN STREET · PHILADELPHIA 39, PA.

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# Dental Digest

AUGUST 1947

Bobby-Pin Destruction of the Incisal Edges of Upper Anterior Teeth
*Walter F. Cogswell, D.D.S., in collaboration with W. W. Cogswell, Jr., D.D.S., K. J. Cogswell, D.D.S., W. W. Cogswell, Sr., D.D.S.* ..... 386

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## *About Our* CONTRIBUTORS

WILTON W. COGSWELL, D.D.S. (Kansas City Dental College, 1913) and his three sons have collaborated on a report of "bobby-pin notches" observed in their practice. A device originated by Walter F. Cogswell for minimizing the damage to incisal edges of anterior teeth from opening bobby pins is introduced. Wilton W., Jr., Walter F., and Kenneth J. Cogswell obtained their D.D.S. degrees from Kansas City-Western Dental College in 1937, 1939, and 1945 respectively. The two latter dentists spent three and one-half years in the United States Navy; the former, two and one-half years. Doctor Cogswell, Sr. specializes in oral surgery and is a visiting lecturer and clinical instructor of oral surgery on the faculty of the University of Kansas, School of Dentistry.

SAMUEL A. LEVIN, D.D.S. (University of Illinois, College of Dentistry, 1907) presents a hollow casting technique for producing wax patterns adaptable to all restorations. The metal molds utilized are part of an original seamless crown system developed by Doctor Levin earlier in his general practice.

The presentation of RAY SWARTZ, D.D.S. (University of Southern California, College of Dentistry, 1915) is another which has resulted from his research on the uses of diatomaceous earth in dentistry. DIATOMACEOUS EARTH TECHNIQUE FOR RAPID PRODUCTION OF GOLD INLAYS in the September 1946 issue is followed this month by a description of four more ways in which this material can aid the dentist in the dental laboratory.

ARTHUR S. HAYNEN, D.D.S. (McGill University, Faculty of Dentistry, 1938) describes in this issue the treatment of a chronic localized osteomyelitis, including an operative procedure for the removal of an embedded tooth causing the infection. This is Doctor Haynen's third DIGEST contribution to the literature on oral surgery since his return from almost five years of Army service in December 1945. In August 1946 he collaborated with John H. Sheldon, M.D., on a report of condyle removal for the treatment of fibrous ankylosis.

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708 Church Street, Evanston, Illinois

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# BOBBY-PIN DESTRUCTION

## *of the Incisal Edges of Upper Anterior Teeth**

**WALTER F. COGSWELL, D.D.S.**
**in collaboration with W. W. COGSWELL, JR., D.D.S.,**
**K. J. COGSWELL, D.D.S., W. W. COGSWELL, SR., D.D.S.**

***DIGEST***

***This is a report of the findings of the Doctors Cogswell in an investigation of what, for want of a better term, they have chosen to call "bobby-pin notches" — areas of abrasion of the incisal edges and angles of the upper anterior teeth of girls and women. Group examinations of young women between nineteen and twenty-five supplemented the findings in their general practice.***

***To help solve the problem causing destruction, they have devised an acrylic appliance for opening bobby pins. This device is described.***

***Inasmuch as sixty per cent of the young women in the limited age group investigated showed clinical evidence of abrasions, the total number of women and girls in all age groups who incur incisal damage from opening bobby pins with their anterior teeth probably includes a large percentage of dental patients. To assist dentists in the recognition of "bobby-pin notches," the most frequently encountered types of these abrasions are described.***

*Read before the Colorado Springs Dental Society, July 9, 1947.

MANY DENTISTS have recognized, no doubt, that notches on the incisal edges and angles of upper anterior teeth are injuries resulting from the repeated use of these teeth as a convenient means of opening "bobby pins." We have arbitrarily called these abrasions "bobby-pin notches."

The frequency with which such abrasions were observed in our private practice, and the increased destruction and disfigurement which appeared with the advance in age (namely, from about the fifteenth to the twenty-fifth year), led us to make several group examinations to augment office findings. By conducting such examinations, it was believed that a more accurate picture could be obtained of what actually occurred to cause such damage. (The patient was apt to attribute the notches to some unknown blow which resulted in an ordinary fracture of the edge or corner of the tooth.)

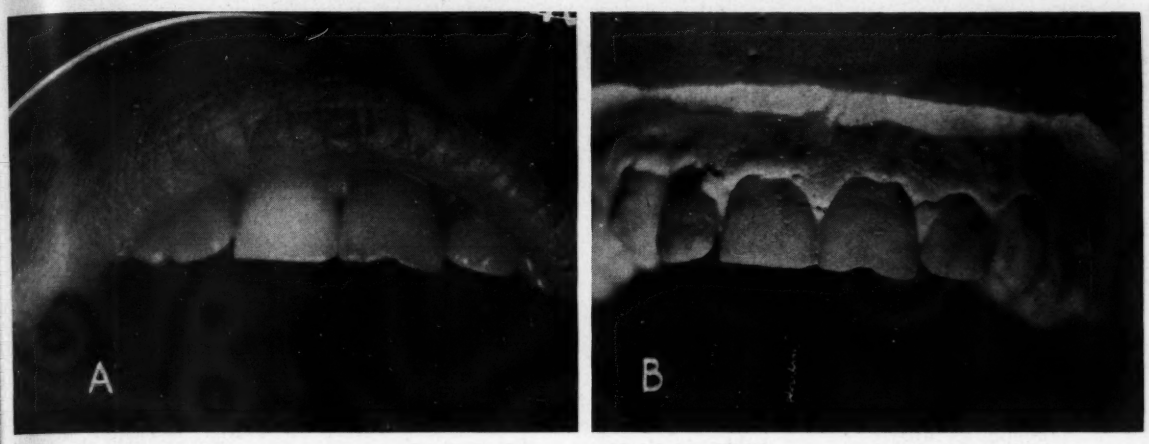
### *Group Examinations*

The procedure of study was as follows:

Students representative of a cross-section of our community, in training in business or professional courses, were chosen. Their average age was nineteen years and four months. These students met in groups, were told the purpose of the meeting, and were asked a given set of questions.

*Group Responses*—Individual patients are apt to deny using their teeth

**1.** ***Typical abrasion of extracted tooth used in opening bobby pin.***




**2.** ***Rounded notch resulting from straight forward pull of pin across incisal edge. Notch extends well up on lingual surface of this fairly thick tooth. (Part A of all illustrations is photograph of actual mouth; part B is photograph of plaster model of mouth pictured in A.)***

for opening bobby pins; we found that when young women were questioned in groups, they did not hesitate to respond in the affirmative by raising their hands. More than 80 per cent admitted repeated use of their teeth in bobby-pin opening.

Of those denying the habit, many were unable to demonstrate the opening of a pin with one hand while holding a lock of hair in position with the other, without involuntarily putting the pin in their mouth.

The universal answer to the question of why they persisted in using the teeth in opening bobby pins was this: When holding a lock of hair in position with one hand, they had no other means of opening the pin with the free hand alone; also, that when opening the pin with the fingernails, they either tore the nail badly or scratched the nail lacquer and polish. (Many seemed more concerned with this latter type of damage than with the abrasion of the teeth.)

Many girls admitted that after long use the pins lost their spring tension, maintained by the curved form at the base or bend of the pin, and that they were in the habit of biting that portion of the pin together to cause the legs of the pin to close more tigthly. This habit further damaged the teeth already weakened by the bobby-pin abrasion.

*Clinical Observations on Teeth*—Examination of the upper anterior teeth disclosed that three-fourths of those admitting the habit (or 60 per cent of the total examined) had marked damage to one or more teeth, principally the upper central and lateral incisors. Few cuspids were involved. Nearly all of the remaining teeth showed the beginning of incisal damage.

In recording the findings of these examinations, recognition was given to actual fracture by other means—any abrasions attributable to other causes such as: thread-biting or opening and closing safety pins, traumatic occlusions, and hypoplasia. However, it was found in many instances that minor fractures of incisal areas by other means were further aggravated by catching the tip of the pin in the convenient notch so provided. Multiple notches were common. Apparently a shifting to another point of fulcrum, because of traumatic periodontal irritation from continual use of one or two teeth, accounted for these.

## Process of Destruction

The constant minute chipping and abrasion which the pin accomplishes remains unnoticed in many cases until the incisal portion of the tooth is fractured and the notch becomes visible on the labial surface, or until the tongue detects the fracture.

The notch (Fig. 1) first appears as a glazed concavity of the inner margin of the incisal edge. This concavity then enlarges, extending well up the lingual surface of the crown of the tooth. As the destruction continues and the concavity deepens and enlarges, the incisal edge becomes thinner and thinner. Suddenly it fractures, and a deep notch becomes visible from the labial aspect. This is also true of the incisal angles of two teeth when that point is used as the fulcrum.

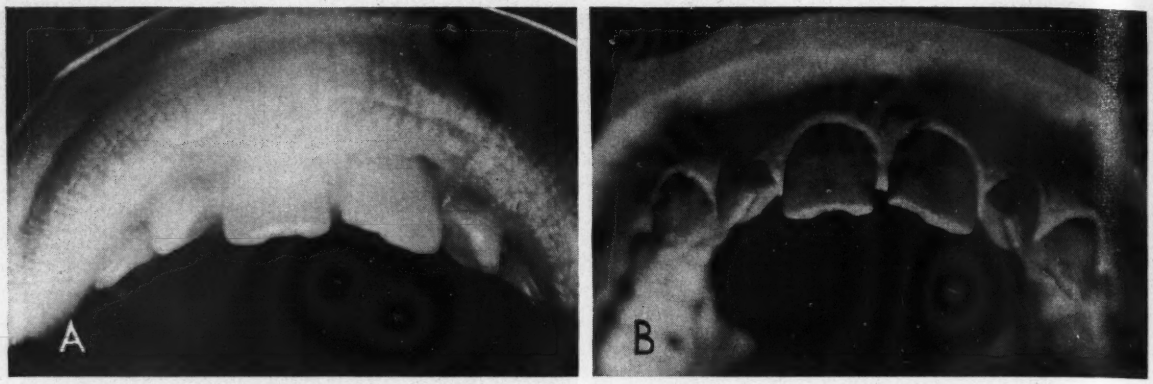
## Causes of Variations in Notch Forms

*Flexibility of Pin*—It is believed that different flexibilities in pins may be responsible for different forms of notches. The longer tine of the pin contacts the tooth and, with an extremely flexible tine, the tip rotates and the sharp corner becomes a more vicious cutting implement. The thicker and more tense spring enforces a straighter forward pull to spread the pin and the tip crosses the incisal edge in a flatter position.

*Accuracy of Placement*—Marked variations in the accuracy of placing the pins on the teeth are shown by different girls. Many return the pin each time to the same point on the lingual of the incisal edge, usually in the center of the tooth or between two teeth. Others vary the position slightly, producing a jagged abrasion. Accurate placement produces a round or square notch just the width of the pin.

## Types of Notches

No attempt has been made here to classify these notches except for des-




criptive purposes in this article. The accompanying photographs give an adequate idea of what was found, both in group examinations and in private practice.

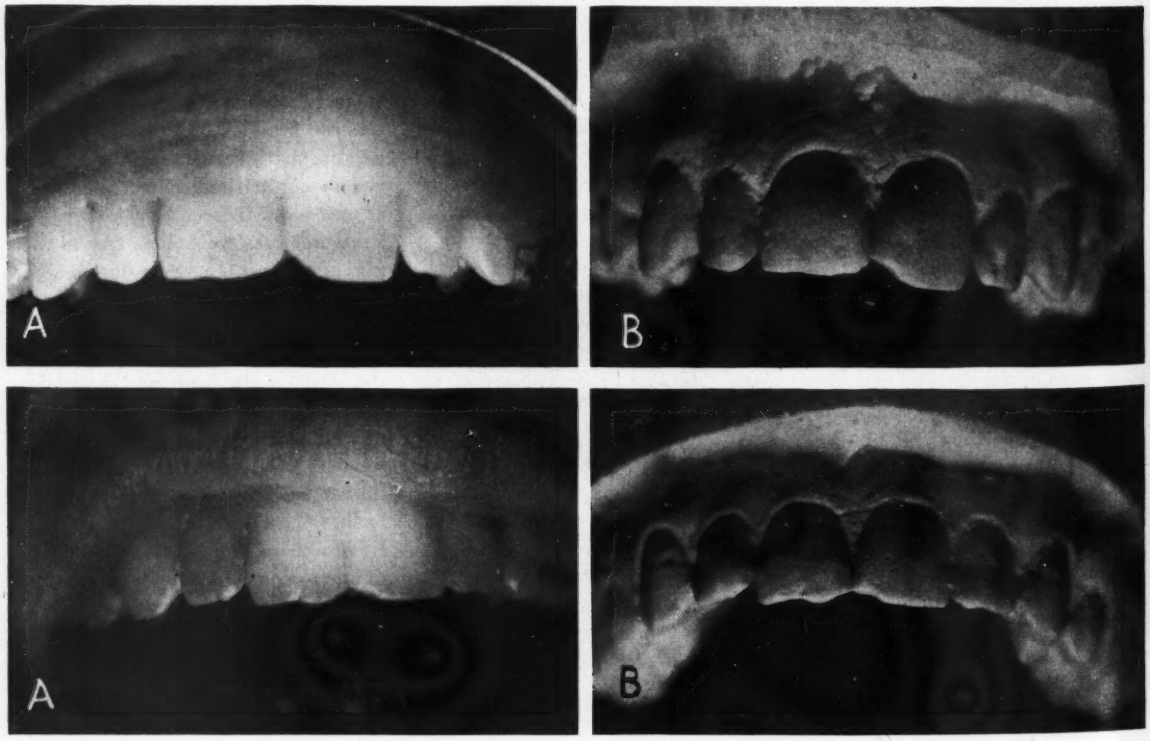
A patient was handed a bobby pin and asked to arrange a lock of hair held with her left hand by opening the pin held in her right hand and placing it in her hair. From the observations of this procedure, the following deductions were made:

1. In Figure 2 the incisal abrasion is a rounded notch extending well up on the lingual surface of a fairly thick left central tooth. This type of notch is the result of pulling the bobby pin straight forward at the same point on the incisal edge each time the pin is used.

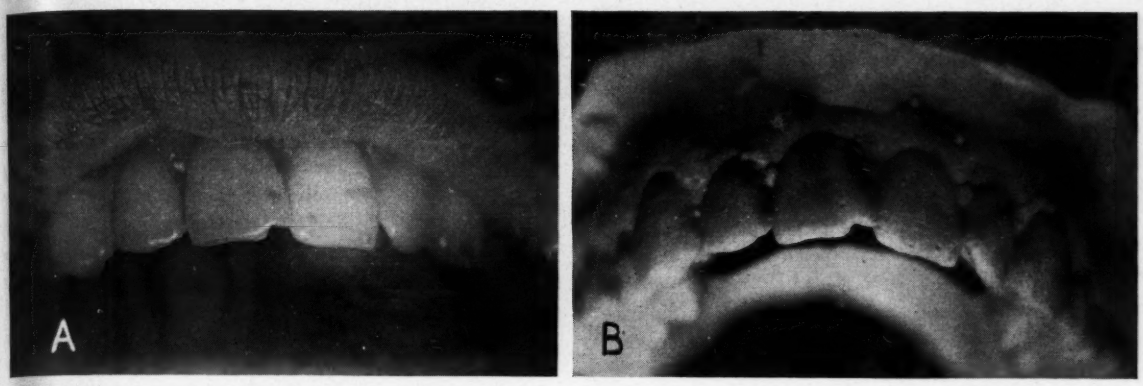
**3.** ***Destruction from same type of bobby-pin placement as that practiced on tooth in Figure 2. Incisal edge is slightly thinner and repeated placement at the same point of fulcrum has produced a square notch.***

2. In Figure 3 the same destruction has occurred in a slightly thinner incisal edge, but repeated placement at the same point of fulcrum has produced a square notch on the labial side as an extension of the lingual concavity.

3. In Figures 4 and 5 the angles of two teeth have been used as the point of fulcrum; but due to the thickness and sturdiness of the teeth, the abrasion has produced a flat triangular depression in the normal incisal line. In this type the pin is drawn slightly




**4.** ***and*** **5.** ***Below: Angles of two teeth used as point of fulcrum. Pin has been drawn slightly to right or left from proximal space. Flat triangular depression is due to resistance of thick, sturdy teeth.***




to right or left from the proximal space, a slanting angle thus being worn to the corner of the tooth. Usually one tooth is worn more than the other and the larger tooth shows the lesser damage.

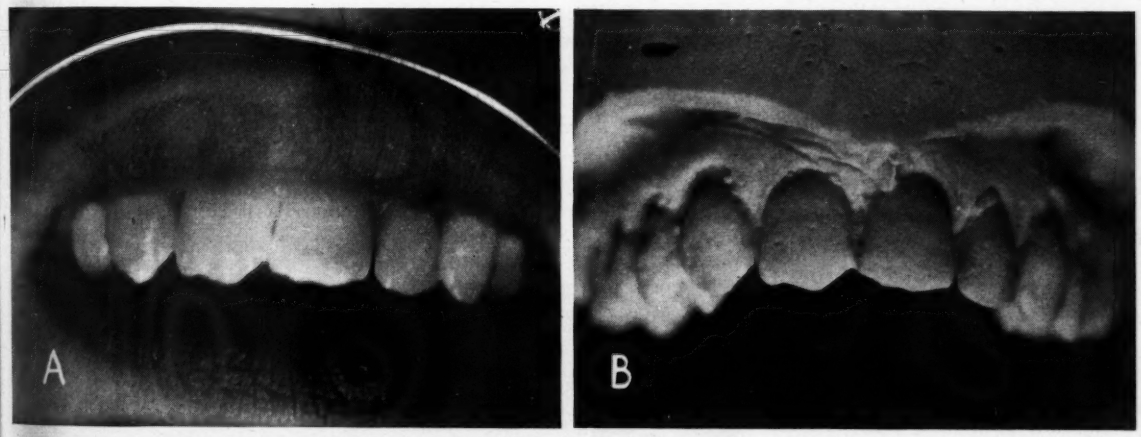
It would appear that tooth resistance was greater in these first four types.

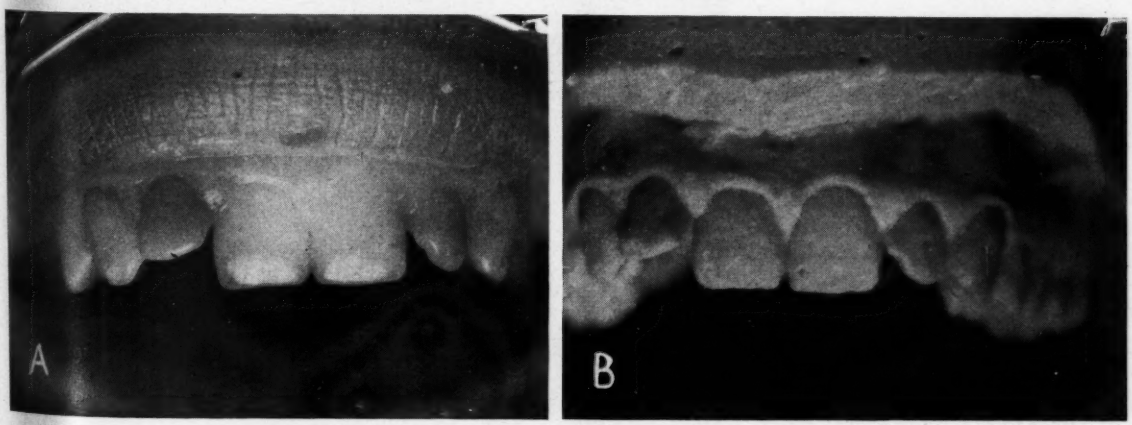
**6.** ***Notch in thin incisal angle caused by accurate adaptation of pin.***

**7.** ***Below: Irregular glazed edges of incisors may indicate lowered tooth resistance but also inaccuracy of pin application.***

4. In Figure 6, thinner incisal angles and accuracy of adapting the pin has resulted in a square notch involving a single angle.

5. In Figure 7, which at first appears to present a case of hypoplasia, the two centrals display the irregular, glazed incisal edges which may denote lowered tooth resistance, but



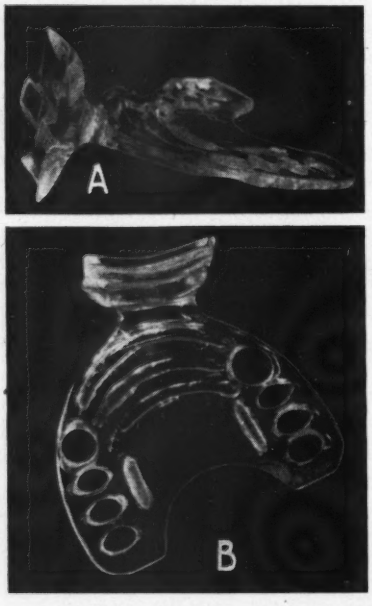




**8.** ***A protruding tooth caused by overlapping provides an ideal catch for the point of a bobby pin. Twisting the pin in this notch causes even greater damage.***

also inaccuracy of pin application.

6. In Figure 8 there is an overlapping of one tooth in which position the protruding tooth presents an ideal catch for the point of the bobby pin. Many girls use this notch for twisting the pin to an open position. (In all cases the bobby pin must be forced open a sufficient distance to permit the thumb and forefinger to close between the tines; in cases where the pin is twisted to do this, the damage is greater.)

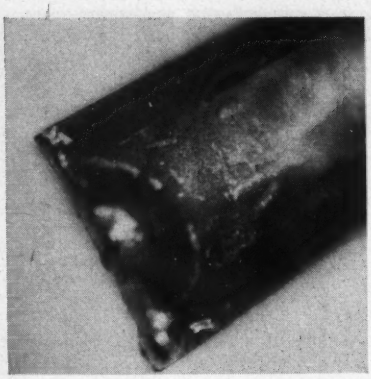
The types in Figures 6 and 8 show the result of a rapid destruction extending high into the approximating




**10.** *(A) Side view of acrylic appliance designed to open bobby pins; (B) top view of appliance showing bite-plate conforming to cusps of anterior and bicuspid teeth.*

surfaces of the teeth and causing loss of contact points and eventual decay. Continued use of one tooth, particularly a lateral incisor, results in periodontal irritation, possible rotation, and forward displacement of the tooth. Changes of the investing structure become apparent in roentgenographs. Loss of vitality occurs in few of these teeth, but many require inlay

**11.** *Appliance in use, held in place by means of bite-plate. Longer leg of bobby pin is caught under shoulder, on anterior vertical plate, at level of normal incisal line.*



**9.** *Magnified tip of a bobby pin.*

or jacket crown restorations which may be lost shortly or destroyed if the habit is continued.

### Correction of Abrasions

These abrasions, of all types, are difficult for dentists to correct without extensive cavity preparation for the retention of restorations. The usual procedure is grinding and polishing. This is necessarily repeated if the habit continues and the result is a complete change in the normal anatomic characteristics and facial appearance of the patient. However, little can be accomplished without complete cooperation of the patient.

### Preventive Device

When one realizes that bobby pins are stamped steel springs which, under low magnification (Fig. 9), show an abrasive quality capable of cutting tooth substance easily, it is little wonder that teeth used in opening them are markedly damaged. A girl may use as many as seventy bobby pins nightly or several times weekly in setting her hair and most girls remove and replace several pins during the day. The great majority of girls have neither the time nor the means to employ the services of a professional hair dresser. Even girls as young as ten years, using only three or four pins daily, present areas of abrasion.

We found no way to eliminate the use of the teeth in opening bobby pins but did devise a successful method to prevent the larger part of the damage. An appliance was constructed of acrylic having a thin bite-plate conforming to the cusps of the anterior and bicuspid teeth and a narrow projection extending forward between the lips. At the outer end of this projection a vertical plate was formed having on its anterior surface a notch or shoulder on the level of the normal incisal line (Fig. 10).

When in use, this appliance is held in position by several teeth with mild and distributed biting pressure (Fig. 11). The longer leg of the bobby pin is caught under the shoulder on the anterior segment with approximately the same motion that takes place when the incisal edge of an incisor tooth is being used. This appliance functions perfectly.

From the cited investigation of what might be termed the more conservative type of person, it seems likely that if a general examination of all types having this habit could be undertaken, the percentages as quoted (80 per cent using their teeth; 60 per cent showing abrasion) would rise materially in the fifteen-to-twenty-five age group. However, the habit is not confined to this group but is common to the older and younger groups, also.

According to the 1940 census there were approximately eleven million women between fifteen and twenty-five in the United States. If the above percentages are applied generally, it becomes obvious that an educational program by the members of the dental profession is imperative.

*Exchange National Bank Building.*

# *Acrylic Moist Chamber Spectacles and Pinhole Glasses*

**CAPTAIN J. W. HALLETT (MC) AUS and CAPTAIN SAMUEL PITTLER (DC) AUS**

THE PREVENTION of evaporation of tears from the corneal surface when inadequate closure of the eyelids exists, as in Bell's palsy, exophthalmos, burns, and traumatic defects of the lids, is a well-established therapeutic principle. It is desirable, also, to avoid minor injury to the cornea when it is analgesic or hypesthetic, as in neuroparalytic keratitis, herpes simplex corneae, and Fuch's epithelial dystrophy.

### *Cone of Washed X-ray Film*

For these purposes perhaps the most commonly used and the simplest and cheapest to make is a cone of washed x-ray film. The base of the cone is cut to approximate the contour of the face around the eye. It is then adhered to the skin and made airtight by strips of adhesive plaster or scotch tape. The disadvantage of this type of shield and similar commercially made celluloid, glass, or plastic shields is the inevitable wetting and soiling of the adhesive strips with loosening thereof and breakage of the airtight seal. This necessitates frequent redressings and usually produces skin irritation. Condensation chambers, also, must accurately fit the contour of the face around the eyes in order to obtain an airtight seal.

### *Acrylic Plastic Chamber*

The most desirable protective shield for two severe cases of herpes simplex corneae was found to be an acrylic plastic chamber processed around the lens and frame of the patient's glasses. Accurate airtight contact with the face is obtained by working from an impression, similar to that for a dental prosthesis, of the entire orbital and periorbital areas of the face.

*Description*—The chamber is durable, light in weight, crystal clear, rather inconspicuous, moisture proof, easily cleaned, and can be removed and replaced as readily as a pair of ordinary glasses. Droplets of moisture can be seen to form inside the chamber within five minutes after its application. Skin irritation is kept to a minimum by the avoidance of adhesive strips. Any dental technician capable of processing an acrylic denture can easily reproduce this type of chamber.

*Procedure*—The first step in the production of the chamber is the preparation of the patient's face for an impression.

1. Impression: A thin layer of petrolatum is applied to the eyelids, brow, and the periorbital area of the face. The lids are kept closed and the eye is protected by a small wad of cotton or gauze placed over the lids. The lens is removed from the patient's metallic frame spectacles, and a soft wax is painted on the nose pads and on all parts of the frame that touch or come very close to the face.

The frame is placed on the patient's face, the wax adapted and, if necessary, more wax applied. The patient is then told to relax his face so that the impression will conform to the most normal contour. With the frame in position, an impression is taken with an alginate base powder. An impression tray for holding the material may be made from dental wax. After the material has set for five minutes, it is removed from the patient's face.

2. Stone Model: Dental stone is poured into the impression. After the stone has hardened, the impression material is removed from the stone model and from the frame which remains in position on the stone model. The case is then ready to be waxed.

3. Wax Model: The base of the wax model is made on the stone model to correspond to the area of contact between the finished appliance and the face. To obtain an airtight seal, the stone model is scraped to a depth of 2 millimeters and a width of 4 to 6 millimeters in all areas except that already covered by soft wax where the frame touches or comes very close to the face. The rest of the wax-up from the base to the frame is made of a single thickness of dental pink baseplate wax, the temple of the frame being kept just clear of the wax.

4. Flasking: On comple-

(*Continued on page* 414)

# HOLLOW CASTING

## *Versus Freehand Waxing and Carving*

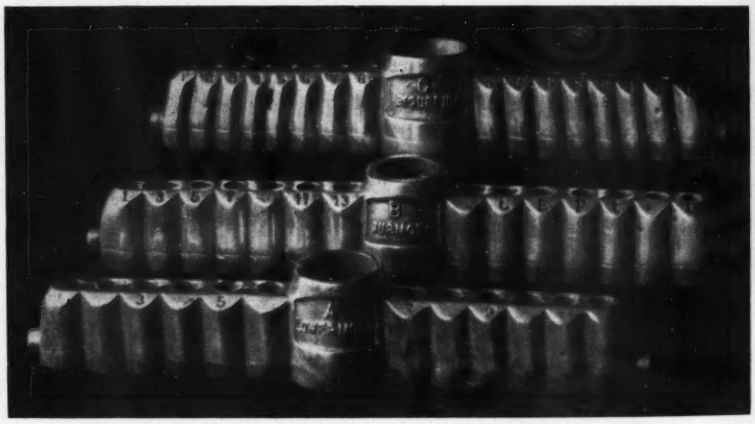
**S. A. LEVIN, D.D.S., Chicago**


### *DIGEST*

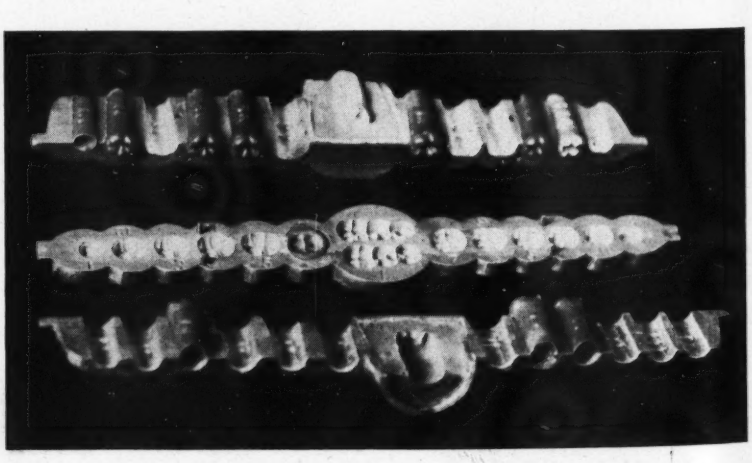
***An original waxing technique is introduced for use by the general practitioner who does some or all of his own prosthetic casting. A selection of prefabricated wax patterns, which require no additional carving, is easily and quickly produced by a process of casting in hollow metal molds. These wax patterns are adaptable to every type of fixed and removable restorations constructed of either gold or acrylic resins by the direct or indirect method. They supply lightweight crowns which have close-fitting gingival margins and require no inside grinding in order to go to place. In many cases the pattern can be fitted directly over the prepared tooth in the patient's mouth. An insulating free space reduces thermal conductivity and also the amount of gold used in casting the crowns.***

***Production of wax patterns by hollow casting virtually eliminates all such intermediate steps as building up an investment core and finishing the pattern by the usual waxing and freehand carving. The process thus makes possible a time-saving as well as labor- and material-saving technique.***


WAX PATTERNS for all types of cast or processed crowns and pontics can be prefabricated by the hollow casting process instead of being prepared by the present method of freehand waxing and carving. This process virtually eliminates the two primary objections to the full cast gold crown; namely, (1) its excessive weight and (2) the messy, time-consuming freehand waxing and carving. There is an average of two-thirds reduction in weight per crown, and the time consumed is but a fraction of that necessary in the present methods of freehand waxing and carving. The entire technique is surprisingly simple; complete mastery of it is within the reach of any one who will spend a little time acquainting himself with the process.



**1.** *Assembled metal molds used in fabricating wax patterns for individual crowns and pontics.*



**2.** *Separated molds.*

**3.** ***Pouring molten wax into the mold.***

**4.** ***Removing the wax pattern from the mold.***

### *The Wax Pattern*

Not a single improvement in wax pattern construction has been presented in the period during which notable improvements have been made in other phases of dental prosthesis. Long hours are still spent in building restorations from raw wax by the laborious and time-consuming freehand waxing and carving. The adoption of hollow casting can relieve the dentist of this excessive consumption of time. He can now start his case with a selection of prefabricated wax patterns which are made up at his leisure and kept in stock to be used when needed.

The following advantages of hollow cast wax patterns establish this technique as a time-, labor-, and material-saving one:

1. Anatomic perfection. These patterns require no additional carving; they are easily trimmed and festooned with an ordinary crown-scissors, just as is a gold band or seamless gold shell ready to be fitted over a single abutment or used as a pontic over the edentulous ridge in bridges.

2. Wide range of adaptability. They are applicable to every type of fixed and removable restorations whether these are constructed of gold or acrylic resins by the direct or indirect method.

3. Lightness and insulating free space. These patterns are of particular advantage in the crowning of vital teeth: They reduce thermal conductivity. (The insulating free space also saves a considerable amount of gold.)

4. Ease of production. One of the most valuable features of this system is the ease with which a lightweight cast crown with a close fitting gingival margin is produced—a crown which always goes to place without any inside grinding.

### *Hollow Casting Molds*

*Purpose*—An ample assortment of the various types and sizes of anatomically-formed wax crown patterns may be produced by utilizing a set of metal molds. These patterns are then available for immediate use. (An identical assortment of solid metal dies, used in seamless crown construction, may just as easily be produced by substituting low-fusing metal for the wax.) The molds are part of a seamless crown and bridge outfit developed some years ago (Fig. 1). The hollow casting technique is a *recent* addition to the original seamless crown system. A comprehensive description of the latter is therefore in order.

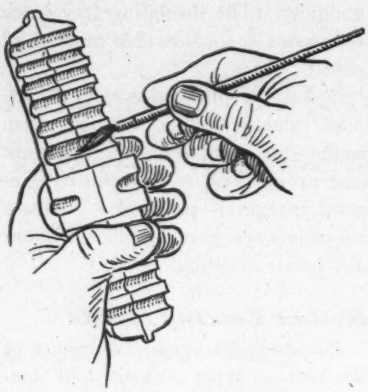
*Description*—Three molds are designated thus: "A" for lower molars; "B" for upper molars, and "C" for upper and lower bicuspids, on the side of the central flask of each mold (Fig. 1). The mold hollows in which the tooth forms are cast are numbered and lettered on top of the beveled margin of each hollow. These letters and numbers are reproduced on the tooth forms and make a simple identification key.

The molds are trisectional. They are composed of a base section and two lateral sections secured together by means of dowel pins which can be released and a simple locking device on each end which may be used when desired. The base section forms the occlusal thirds; the lateral sections form the gingival two-thirds and the stems of the tooth forms (Fig. 2).

### *Casting Technique*

1. The inside of the mold (which must be clean) is well lubricated with vaseline to prevent sticking (Fig. 5).

2. A sufficient quantity of medium-soft wax is melted in an ordinary lab-



**5.** ***Lubricating mold preparatory to pouring the wax.***

oratory ladle and poured into all the individual mold hollows at one time (Figs. 3 and 6).

3. The wax is retained in the mold just long enough (one or two seconds) to form a wax film adhering to the inside walls of the mold hollows.

4. The mold is immediately *inverted* and, with a downward shaking motion, the wax is *forcibly* expelled from the mold into a cool, moist receptable or cloth from which it is easily removed for further use (Fig. 7). The weight and thickness of the patterns is controlled by the length of time the wax is retained in the mold before expulsion. The longer the retention, the heavier and thicker the pattern.

5. The mold is now opened, first, by lifting the upper sections off the bottom section, then by separating the upper sections.

6. The patterns are carefully removed (Figs. 4 and 8) and stored away for future use.

The bottom sections of the molds make excellent waxing die plates for the casting of an assortment of hollow occlusal patterns for use with gold bands and cast occlusal crowns or as occlusals in the gold-and-acrylic combination pontics in bridges.

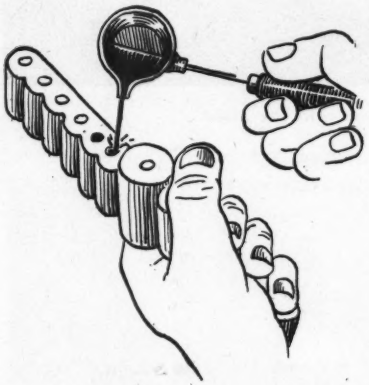
## *Method of Wax Pattern Adaptation*

Prepare the tooth and proceed in the same way as for a porcelain jacket crown.

1. Select a pattern approximating in type and size the tooth to be crowned.

2. With ordinary crown scissors, trim and festoon the pattern to an approximate fit over the vaselined preparation.

3. Bring down the opposing teeth to proper occlusion. (Functional occlusion is best obtained by leaving the pattern about one or two millimeters longer than the adjacent teeth. A more exact cuspal relationship with the opposing teeth may thus be produced when the case is occluded, either directly in the mouth or indirectly on the articulator.)



**6.** ***Pouring medium soft wax from a laboratory ladle.***

**7.** ***After pouring, mold is immediately inverted and excess wax forcibly expelled with a downward-shaking motion. This ensures a hollow pattern.***

4. Pass the fine point of a number 2 spatula, hot enough to lute the wax, around the entire gingival margin. Burnish it down to a feather edge on a *shoulderless preparation* and to the desired thickness of a shoulder preparation. (At this point it is advisable to try to lift the pattern off to make sure it does not adhere to the model.)

5. Before the final glazing, the margins should be protected from possible distortion, while being removed from the model, by flowing a light ring of hard inlay wax around the entire margin and reburnishing it. (A wooden manicuring point or a pointed orangewood stick is preferable to metal for this purpose.)

6. The final finish is best accomplished by passing the pattern quickly over the Bunsen flame; this step eliminates all the irregularities and produces the much desired glossy finish.

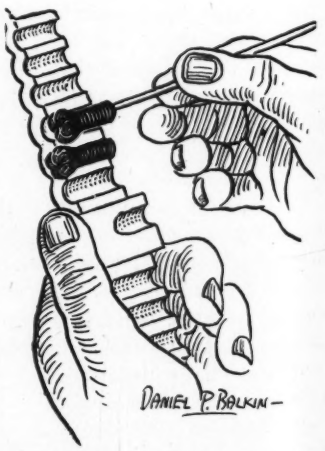
(This flaming is much safer and better controlled by a tiny flame produced from a large hypodermic needle attached to one end of a small rubber tubing, the other end of which is connected with a gas outlet.)

## *Modifying Crown Patterns*

To convert a full-face crown pattern into a veneer or an open-face crown, the following steps are taken:

1. As a precaution, first remove the finished pattern, chill in cold water, and replace it over the model.

2. With the hot point of a wax spatula, remove the labial or any other portion of the pattern to be eliminated.




**8.** ***Removing hollow wax pattern after pouring.***

3. At this point, if the pattern is for a plastic veneer, make a few perforations with a hot pointed instrument along the distal margin of the opening to provide retention for the veneer. This should be sufficient to obviate the need for any additional metal reinforcement.

4. Spruing, investing, and casting are carried out in the usual manner.

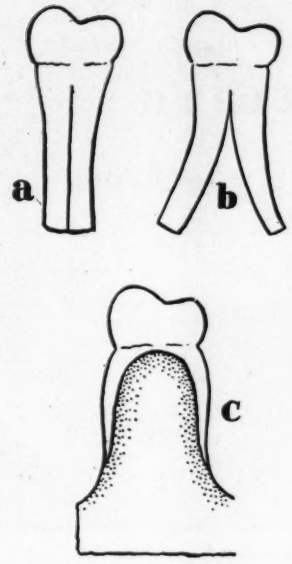
There are several types of all gold crowns besides the full cast crown. These can be used to advantage and each has its place. Anybody who limits himself to a single type or method is greatly handicapped. By utilizing the different types according to the nature of the case in hand, one can render a superior service and often simplify the solution of an otherwise difficult problem.

### Hollow Cast Pontics

In considering *all-plastic restorations*, both fixed and removable, the hollow casting process assumes even greater importance. Instead of spanning the edentulous ridge with a solid block of wax and gradually carving it into the required anatomic form, the dentist can now assemble ready-made crown forms in proper alignment over the tinfoiled ridge and articulate them in the usual manner. He can unite all the segments, abutments, and pontics with a hot pointed instrument and finish them by flaming.

For *all-acrylic restorations* it is advisable to cast the patterns considerably heavier, whether they are for single abutments or multiple pontics. When the trimming and final fitting is completed, they may be made solid by flowing low-fusing wax into them and quickly realigning and reoccluding them over the model. Spruing, investing, and casting is done in the usual manner.

The stems of wax patterns for fixed crowns and pontics are cut off from the crown portion at or near the gingival margin. For removable pontics, a sufficient length of the stem of the pattern is retained to form the saddle over the edentulous area to be bridged. The stem is bisected mesiodistally up to the gingival margin and then separated buccolingually to fit over the ridge (Fig. 9).




**9.** ***Bisection of the wax stem (a); separation of the two parts (b); and adaptation of the parts over the buccal and lingual aspects of the ridge (c).***

### Miscellaneous Suggestions

*Separating Stem from Crown*—The easiest and quickest way to separate a stem from the crown portion is by inserting a round wooden stick into the inner side of the stem up to and slightly beyond the gingival portion of the crown. The stick is then held in the left hand with thumb and first finger over the lower end of the stem. With the right hand, the cutting edge of a knife is placed across the wax pattern at the desired point of separation. The knife is held steady while, at the same time, the stick and pattern are rolled toward one. A clean separation is thus made. (These wooden sticks may likewise be used for removing the patterns from the casting molds without distortion [Figs. 4 and 8]).

*Lubrication*—A small round paint brush dipped into a small jar filled with a vaseline-saturated ball of cotton makes a most convenient method of applying this all-purpose lubricant for chair and laboratory.

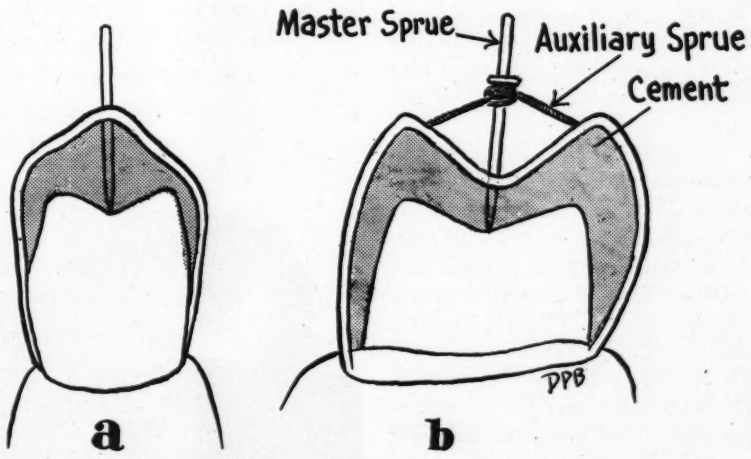
*Casting Wax*—Two parts of light beeswax to one part of paraffin or white candle makes an excellent all-purpose casting wax for this technique. (Old bite wax, reclaimed by placing it in a pan of water containing about one cubic centimeter of hydrochloric acid and bringing it to the boiling point, may also be utilized for this purpose.)

*Gingival Margins*—Before the final removal of the crown pattern from the model, all margins should be protected from possible distortion by flowing a light ring of hard inlay wax around the entire margin.

*Enlarging Pattern*—This is easily accomplished by placing the cervical portion of the pattern over a round stick and rolling it back and forth over the palmar surface of a left finger.

*Modification of Patterns*—The re-

(*Continued on page* 397)




**10.** ***Master sprue attachment as used for cast gold crown and bite-raising cases where the sprue extends inward to the tooth preparation to act as a stop.***

# DIATOMACEOUS EARTH

## *as an Aid in the Dental Laboratory*

**RAY SWARTZ, D.D.S., Lompoc, California**


### *DIGEST*

***The practicality of diatomaceous earth powder and earth brick as dental laboratory aids is exemplified by four ways in which this material has been used successfully. In September 1946 Doctor Swartz described in these pages a technique for rapidly producing gold inlays through the use of diatomaceous earth. Mentioned in this current report are some physical properties of diatomaceous earth responsible for the advantages of using it in dental laboratory procedures.***


BY VIRTUE OF its unique physical and chemical properties, diatomaceous earth is particularly well suited to a number of uses in the dental laboratory.

The chemical composition of diatomaceous earth is essentially amorphous silica. The material is therefore quite inert in contact with other dental materials, even at high temperature. Physical properties of special interest are: (1) low apparent density, (2) low thermal conductivity, and (3) ability of the processed powder to cohere and give a sharp impression. These properties all result from the irregular, porous structure of the individual diatom skeletons and the way the particles interlock on compression.

Diatomaceous earth is processed as a powder into a number of grades differing principally in particle size and is also cut directly from the deposit at Lompoc, California, in the form of insulating brick. Its many industrial applications include its use as a filter aid in the refining of sugar, varnishes, and oils; as a filler for paints, plastics and papers; as a polish, an admixture in concrete, an insecticide carrier, and an insulating material. It is also a source of chemical silica.

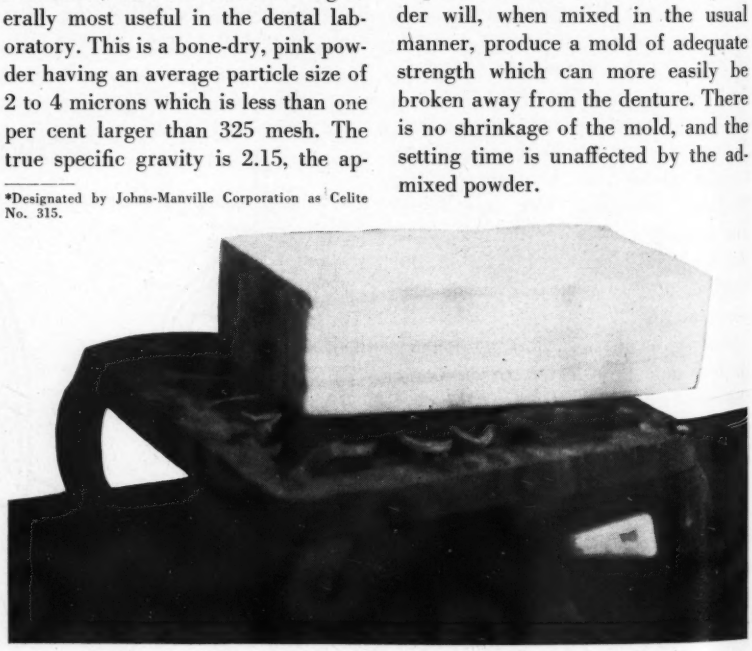
After experimenting with several types of powder I have found that an air-floated, calcined material* is generally most useful in the dental laboratory. This is a bone-dry, pink powder having an average particle size of 2 to 4 microns which is less than one per cent larger than 325 mesh. The true specific gravity is 2.15, the apparent density dry from 8 to 9 pounds per cubic foot, and the tamped weight from 21 to 27 pounds per cubic foot. The powder will absorb nearly twice its own weight of water.

Various laboratory uses for this material will suggest themselves to the dental technician and he will soon find it, as I have found it, an indispensable laboratory adjunct. Four uses of demonstrated practicality are described as examples.

*Designated by Johns-Manville Corporation as Celite No. 315.

### *Mold for Repair of Denture*

In repairing a broken denture, a mold is often required. This is commonly prepared from the usual investment material. Such a mold is stronger than necessary and is difficult to remove from the denture. A mixture of equal volumes of plaster of paris and diatomaceous earth powder will, when mixed in the usual manner, produce a mold of adequate strength which can more easily be broken away from the denture. There is no shrinkage of the mold, and the setting time is unaffected by the admixed powder.



**1.** *Diatomaceous earth brick oven.*

**2.** *Lifting brick by cool end.*

### Holder for Soldering

A holder in which may be embedded gold castings for soldering contacts can readily be prepared by filling a small cup with diatomaceous earth powder. After the powder has been firmly pressed around the piece, it will be held solidly in place. All except the exposed surface will be protected from the heat by the insulating powder.

This method is more rapid than the usual soldering procedure in that there is no waiting for an investment to set, and the insulating property of the powder makes heating of the entire holder unncessary. A casting ring provided with a plaster of paris bottom makes a suitable cup.

### Furnace

An insulating brick of natural diatomaceous earth forms a cheap and convenient inlay furnace when hollowed out near one end and placed on the spider of a gas hot plate (Fig. 1). Metal parts are quickly and evenly heated when placed within the hollow, and the brick may easily be lifted with the bare hands (Fig. 2) by the solid and cool end for observation of the work. A standard size brick is 2½ inches by 4½ inches by 9 inches and weighs about 1.9 pounds. It will withstand temperatures to 1600° Fahrenheit.

### Soldering Block

The heat insulating properties of diatomaceous earth brick are also the basis of its use as a soldering block. Small hollows of convenient size may easily be made on one surface. The brick is a better insulator than the usually used asbestos material and remains cool except at the actual point of heat application.

## Hollow Casting Versus Freehand Waxing and Carving

(*Continued from page* 395)

siliency of the wax pattern and the inner free space permit dimensional and anatomic corrections more easily by finger manipulation than by carving.

*The Cast Gold Crown in Bite-Raising*—To obviate the unnecessary excess of gold in bite-raising, insert the heated point of the master sprue through the center of the occlusal surface of the wax pattern of ordinary thickness until it contacts the tooth preparation. This furnishes a definite stop for the crown (Fig. 10). The rest of the free space between the tooth and crown is filled in with insulating cement.

Compare this quick and simple technique with the present methods of building up the tooth preparation with a core of model investment or reducing the thickness of the pattern with burs and excavators as practiced by some technicians to accomplish the same result.

3811 *Pine Grove Avenue.*

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# *Chronic Localized* OSTEOMYELITIS

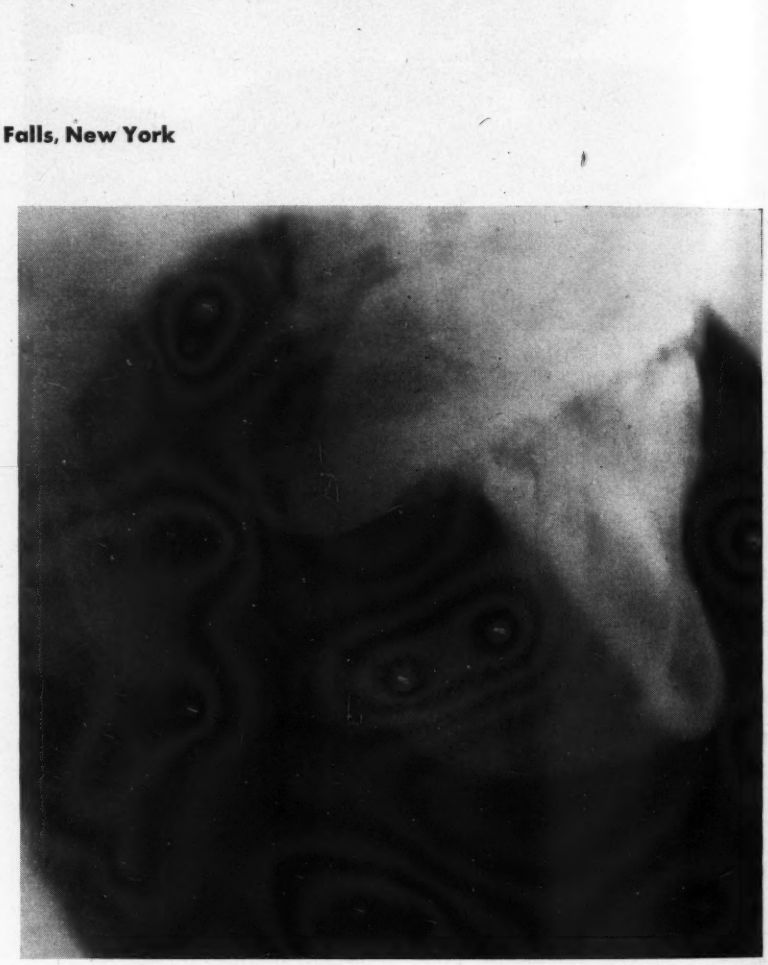
## *Due to an Embedded Tooth*

ARTHUR S. HAYNEN, D.D.S., Glens Falls, New York

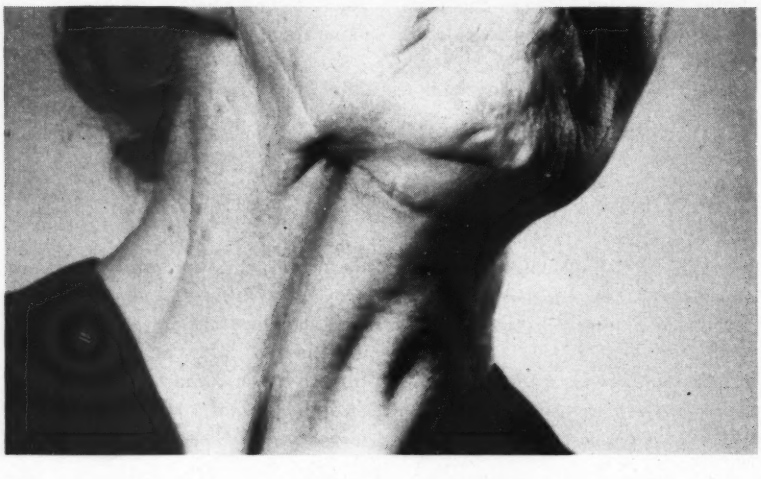

### *DIGEST*

***The five-point plan of treatment is presented which cleared up an osteomyelitic infection in the mandible of an elderly woman. Suppuration of several years' duration was found to be caused by a small tooth embedded in the horizontal ramus. This was removed under local anesthesia after three days of intensive medication with sulfadiazine and penicillin supplemented by a high caloric diet.***

***Scar tissue was removed which resulted from previous unsuccessful attempts to correct the condition surgically. The improved appearance of the operative site and the relief of the osteomyelitis combined to check a threatened mental depression and further physical debilitation.***

**1.** *Preoperative appearance.*



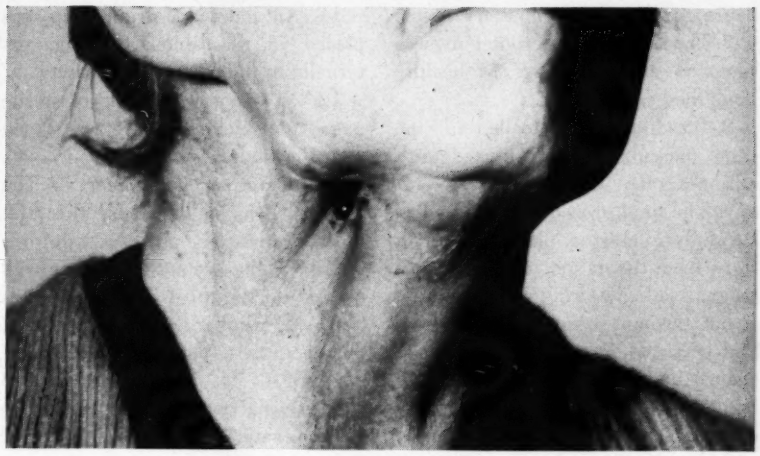
**2.** *Preoperative roentgenogram.*

### *History and Diagnosis*

A WOMAN, aged 68, was referred to this office for treatment of a chronic suppurating infection of the mandible of five years' duration. Clinical examination revealed thick, yellowish pus draining extra-orally from the lower right second molar region. Two parallel lines of scar tissue extending from the lower right angle of the mandible to the cuspid region revealed

evidence of previous attempts to drain the area (Fig. 1).

The patient wore a full upper denture and had only six lower teeth, anteriors. Clinical findings in an intra-oral examination were negative. Roentgenograms of the lateral and anterior-posterior views of the jaw showed an irregular-shaped fragment lying near the inferior border of the mandible and resembling a sequestrum or a tooth. The density of the structure led us to believe that an anomalous third molar in an unusual position was causing the infection. The surrounding bone looked as though it were undergoing a chronic infectious change (Fig. 2).



**4.** *Appearance five days after operation.*

**3.** *Roentgenogram taken five days after operation.*

### *Treatment Plan*

1. Hospitalization to improve the general condition of the patient for operation.

2. Medication to build resistance to further infection.

3. Operation to eliminate the foreign body causing the suppuration. (A plan was also made for fixation by vitallium pins in case a pathologic fracture existed or an operative fracture occurred.)

4. Changing the incision lines in the same operation by removing old scar tissue to obtain a better cosmetic effect.

5. Postoperative treatment until final recovery.

The patient was hospitalized and given a high caloric diet, 20,000 units of penicillin calcium intramuscularly every three hours, and sulfadiazine 15 grains orally every four hours for a three-day period. Operation was performed on the fourth day.

### *Operative Procedure*

*Anesthesia*—Due to the age and general condition of the patient, local anesthesia was the method of choice.

1. Morphine sulfate 1/6 grain was given one-half hour preoperatively.

2. An intra-oral mandibular block was made with procaine, pontocaine hydrochloride, and cobefrin.

3. Extra-oral anesthesia was obtained by infiltrating 1 per cent procaine around the operative area.

*Surgical Technique*—1. The primary incision was made on the inferior border of the mandible and extended from a point anterior to the facial artery to the cuspid region.

2. By blunt dissection, the lower border of the mandible was exposed.

3. In progressing upward to expose the external surface, a large branch of the facial artery was severed. It was necessary to ligate this and several accessory "bleeders."

4. Necrotic bone was removed with rongeur forceps and spoon curets.

5. The foreign body was exposed, lying in the body of the horizontal ramus near the inferior border of the mandible.

6. By means of a curved elevator, a small tooth was removed resembling a lower bicuspid and surrounded by a

dense growth of inflammatory tissue.

7. The remaining necrotic bone was removed and the edges of healthy bone filed smooth.

8. Bleeding was controlled and the deep muscular layers sutured with chromic gut.

9. The final procedure consisted in carefully removing old scar formations from the cuticular and subcuticular tissues. The ring of granulation tissue through which the discharge had persisted was excised by funnel-shaped incisions, the funnel apex being left downward. Thus new regenerative tissue could fill in and eliminate an upward pulling of the mobile neck tissues by scar formations.

10. The anterior and posterior edges of the primary incision were closed with fine cuticular silk.

11. An iodoform drain strip was placed in the center opening, externally to the central bone cavity.

12. An external dressing of sterile gauze four inches square was taped over the wound.

*Postoperative Treatment* — The dressing was changed on the first postoperative day and the iodoform gauze on the second day. Drainage cleared on the third day and the patient was discharged on the fifth. A postoperative roentgenogram taken on the fifth day is seen in Figure 3. The external wound appeared to be healing satisfactorily (Fig. 4) five days after operation. The patient received 20,000 units of penicillin intramuscularly every three hours up to the time of discharge from the hospital.

### *Conclusion*

It was fortunate that a pathologic fracture did not exist or occur during operation. This was deemed quite possible up to the time of removing the tooth. It was then seen that the lingual plate was continuous, supported by some alveolar process above.

Inasmuch as the patient had previously entered several hospitals, both she and the dentist were gratified that the osteomyelitic condition was corrected. She had been told that little could be done and was becoming mentally depressed and physically debilitated. At the present time, healing is progressing normally and the patient has improved physically and mentally.

37 *Bay Street.*

## Changes in Mouth Tissues After Vaccination

**SAMUEL CHARLES MILLER, D.D.S., New York**

I HAVE had several cases for diagnosis of a painful itching or burning in discrete circumscribed areas in various parts of the mouth (tongue, lips, gingivae) which clinically show slight edema or desquamation. These lesions appear three to four days after vaccination against smallpox with varying intensity. No doubt the majority of the patients report no symptoms of this type; but in those cases affected, the diagnosis may have puzzled some dentists.

It is possible that other forms of immunization may produce temporary aberrations of the oral tissues which previously have not been thus associated.

From Correspondence, *Journal of the American Medical Association* 134:393 (May 24) 1947.

## Costen's Syndrome and Head Pain

BELL[1] POINTS out that Costen's syndrome is a hitherto unrecognized cause of vague head pain, which many patients have endeavored to describe with but little success.

The symptoms are often bizarre. They usually arise because the mandibular condyle does not have a normal position in the articular portion of the mandibular fosa (glenoid fossa) throughout the various excursions of the mandible, these latter movements being controlled by the position of the teeth.

The symptoms include: dull pain within and about the ears; a "low buzz" type of tinnitus; a stuffy sensation in the ears; catarrhal deafness and dizzy spells which are relieved by inflation of the eustachian tubes; tenderness to palpation of the temporomandibular joints; sinus headache after sinus or ocular involvement has been found nonexistent; neuralgia; noisy, painful and either limited or excessive movement of temporomandibular articulation; burning or prickling sensation of tongue, throat and side of nose, and dryness of the mouth.

Examination of the mouth and facial characteristics will generally more than hint at the loss of vertical dimension. Costen's syndrome is treated by increasing the maxillomandibular vertical dimension.

From Current Medical Literature, *Journal of the American Medical Association* 133:208 (January 18) 1947.

[1]Bell, J. C. R.: Costen's Syndrome: Hitherto Unrecognized Cause of Vague Head Pain, M. J. Australia 2:433 (September 28) 1946.

# *The* EDITOR'S *Page*

TRAUMA PLAYS an important role in disease. Tissue that has been injured by violence loses its protective continuity. Cell barriers are broken down; the circulation is disturbed; the conduction of nerve impulses is altered. Tissue thus injured is open to infection or to the development of degenerative or neoplastic disease.

The dental hard and soft tissues are subject to injury from chemical and physical violences. An irritant may be chemical, in the form of something ingested, inhaled, or applied to an external body surface. The degree of response to such traumatic agents depends upon the type and concentration of the chemical irritant and the kind and quality of the tissue affected.

The traumatic irritant may be a physical object —an automobile, a knife, any force applied acutely to tissue by accident or design. A physical traumatizing agent may be a pernicious habit pattern applied over a period of time. In such a case, the elements of acuteness and violence are usually absent and the traumatic force is applied almost unwittingly. The cheek biter, the pipe smoker, the skin picker, display pernicious habit patterns that have been observed by every dentist. The abraded teeth of carpenters and upholsterers who carry nails and tacks in their mouths are well known. The migration of teeth that are subject to excessive stress; the notched teeth of the seamstress; the inflamed soft tissues of the smoker; the fractured teeth of the person who insists on using teeth as a vise, a bottle opener, or a nut cracker—all these conditions are often observed in practice.

To these chemical and physical traumata, many of which may lead to serious infection and malignant disease, the Cogswells' report[1] adds another kind of hard tissue injury. Among girls and young women, the Cogswells observed a type of injury to the upper anterior teeth produced by using the teeth to open bobby pins. Over a period of time the use of the teeth as a wedge to open the springs of bobby pins produced an abrasion of the incisal edges and corners and the lingual surface. The frequent application of incising force with a hard metal object intervening produces a wedge that in time will split fragments from the upper anterior teeth. The time interval before damage is observed will depend upon the degree of biting force applied, the hardness and the spring-strength of the bobby pin, and the quality of the dental hard tissues.

The use of the term "wedge" may be inaccurate. In a true wedge the splitting force is an in-driving force. The bobby-pin type of injury might be compared to the two jaws of a vise being repeatedly closed upon an object of greater hardness. In time the metal jaws of the vise would show signs of wear and abrasion.

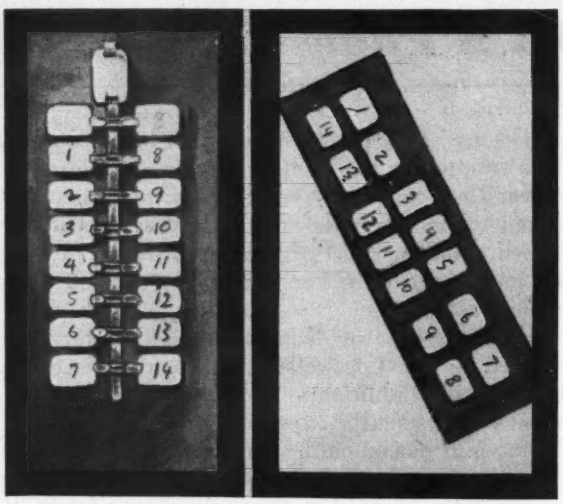
From the type of dental hard tissue injury described by the Cogswells, another force is to be considered in addition to the clamping of the teeth upon a hard, metallic object. That force is generated by the pull placed on the spring tines of the pin to force it open. This is a force that throws an anterior strain on the fibers of the periodontal membrane. It is likely that in time such a stress may produce morbid changes in the periodontal tissues.

Disturbances in the periodontal membrane might not be expressed until later years when the resistance of the periodontal membrane is reduced. Generally speaking, periodontal diseases do not exhibit themselves until the middle decades. The patients reported by the Cogswells are young women who have not yet entered the age group subject to chronic periodontal disturbances. The application of overt stresses among these young women may, however, produce stretchings, tearings, and circulatory damage in the periodontal tissue and pre-dispose the tissue to later disease. So, though the immediate damage produced by bobby-pin trauma is in the hard tissues of the tooth crown, it is quite possible that traumatic injuries are being inflicted upon the supporting tissues and that these tissue insults will later be expressed in the form of localized periodontitis involving the injured teeth.

Such needless damage to dental hard and soft tissue may be avoided by making known to young women the dangers of using the teeth to open bobby pins. This is a job of education by dentists at their chairs, by dental society press releases, by cooperation from the women's magazines, and other media of communication. It would be naive to expect women to discard the bobby pin and return to the old-fashioned hair pin which dropped or extruded on all occasions. If women must choose between their "crowning glory" and crowned teeth, the evidence of beauty shop patronage and of widespread dental neglect suggests that they will continue to use the bobby pin even if it is injurious to their teeth. The Cogswells apparently recognized this feminine psychology and suggested a dental appliance that may be used to open the bobby pin without endangering hard tissues.

[1]Cogswell, Walter F.; Cogswell, W. W. Jr.; Cogswell, K. J.; and Cogswell, W. W., Sr.: Bobby-pin Destruction of the Incisal Edges of Upper Anterior Teeth, DENTAL DIGEST 53:386-391 (August) 1947.

# Clinical and Laborator

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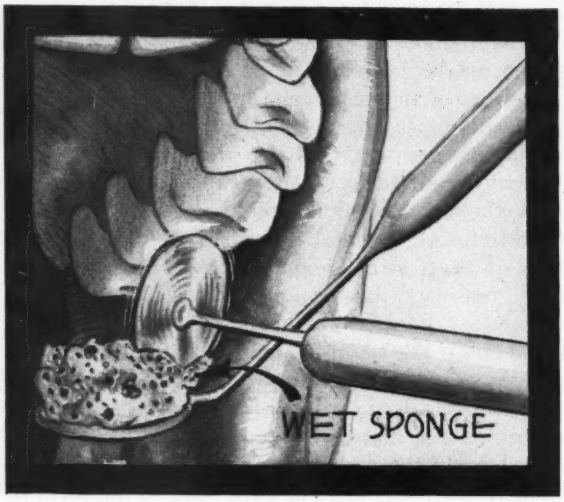
## X-ray Time Saver

**Helen Bethards, D.A., Monmouth, Illinois**

Fig. 1—In making a full mouth roentgenographic study, number the films after exposure in the order taken. If these films are placed on the film hanger in the same sequence, they will be ready to mount in the proper order when the processing is finished.

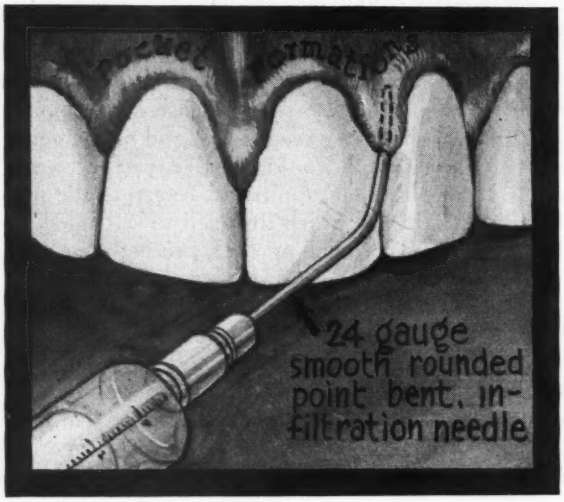



2

## Heat Control During Tooth Preparation

**Richard Gottlieb, D.D.S., Brooklyn**

Fig. 2—In tooth preparation the heat generated by diamond discs, stones, and other revolving instruments may be eliminated by the use of a simple device. Remove the mirror from its setting and replace with a piece of sponge which is held in place by modeling compound. Keep the sponge wet and allow one end of the stone or disc to touch the instrument while in use. This will cool and clean the instrument at the same time.




3

## An Instrument for Use in Treating Vincent's Disease

**D. M. Stiber, D.D.S., Selins Grove, Pennsylvania**

Fig. 3—Cut off the end of a 24-gauge needle using a lightning disc. Round and polish the cut end of the needle and bend it to secure an angle of 45 degrees. This may be attached to a graded syringe and used to irrigate pockets that are present in Vincent's infection. The blunted needle is inserted into the pocket to its depth and, if handled gently, should cause no tissue injury. This method of subgingival lavage removes debris and pus from the pocket.

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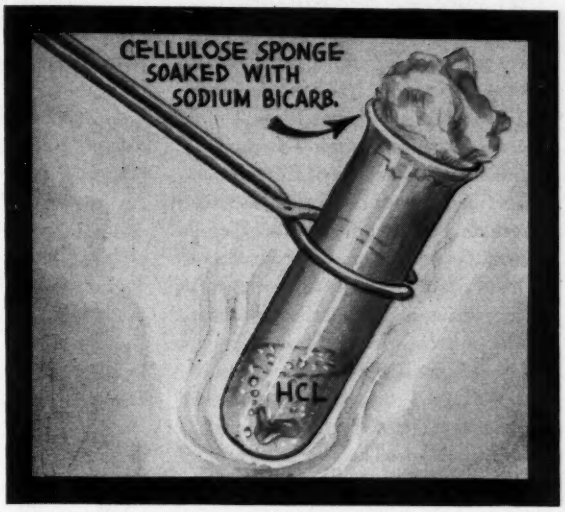
# UGGESTIONS . . .

## Method for Pickling Castings

**W. L. Levy, D.D.S., Fall River, Massachusetts**

Fig. 4—A pyrex test tube 6½ inches long and a piece of cellulose sponge slightly larger than the opening of the tube make up a pickling device which does not allow acid fumes to escape when castings are boiled. Pour sufficient acid into the test tube to cover the casting; then dip the sponge in sodium bicarbonate solution. Squeeze it out, and place it in the test tube opening. No fumes will escape for they will be neutralized by the bicarbonate. The sponge will last indefinitely if it is rinsed after each boiling and treated with more bicarbonate.

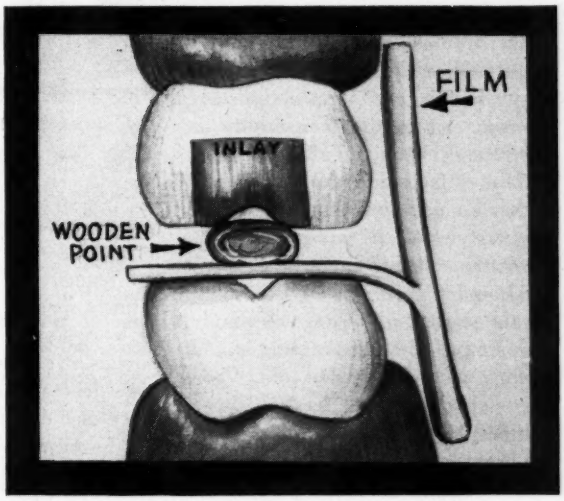



4

## Roentgenogram of an Inlay Before Cementation

**Paul Kwartin, D.D.S., Brooklyn**

Fig. 5—When the inlay is polished, the occlusion adjusted, and the contact point developed, place the casting into the tooth. Select a bitewing film, place a wooden point directly over the inlay, and have the patient bite on the film tab and the wooden point at the same time. Develop the film immediately to determine the condition of the gingival margin of the inlay.

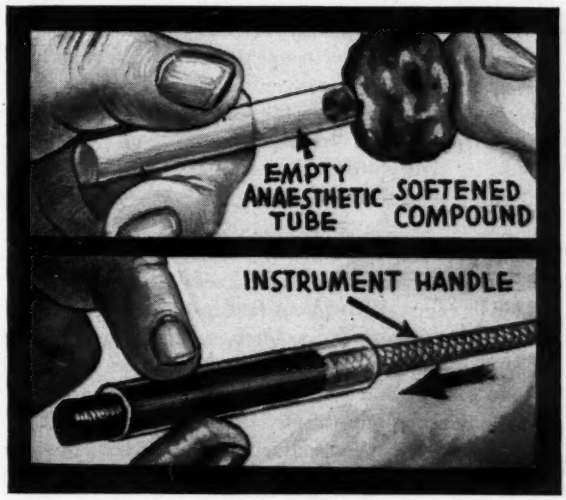



5

## Forming Modeling Compound Scraps Into Sticks

**R. D. Hills, D.D.S., Drayton Plains, Michigan**

Fig. 6—Remove the stopper and the plunger from an empty anesthetic tube. Soften the modeling compound in hot water and force the softened mass into the tube until the compound emerges from the other end. Chill the tube in cold water and force out the compound stick with a suitable instrument. The sticks thus formed are convenient to use for copper tube impressions and as tracing sticks on impressions.




6

suitable illustrations; write a brief description of the technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

Turn to page 411 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

# MEDICINE and the Biologic Sciences

## *Fever (Pathology)*

Fever is a condition characterized by an increase in body temperature and destruction of body tissues. There are many causes ranging from mechanical injury to bacterial infection.

The manifestations of fever are disagreeable but its purposes are beneficial: It accelerates the destruction of bacteria or other injurious agents by increasing phagocytosis and by the production of immune bodies.

The temperature-regulating mechanism of the brain closely controls the temperature of the body in warm-blooded animals. The control is largely dependent on two factors, thermogenesis (heat production) and thermolysis (heat dissipation).

In man the body temperature ranges from 98° to 99.5° Fahrenheit. Its variations depend on the time of day, exercise, and age. In the early morning hours the temperature is lowest and in the late afternoon it is highest. Infants and children show a higher temperature than adults. The temperature of the aged is slightly lower than that in younger persons.

Alcohol and anesthetics may abolish the process which regulates body temperature thereby causing rapid chilling upon exposure to cold. When the temperature rises to 107°-109° Fahrenheit, profound disturbances of the brain cells result.

A rather close relationship exists between the pulse rate and temperature. Ordinarily there is an increase of eight pulse beats for each 1.8° Fahrenheit increase in the temperature. The exceptions to this are tuberculosis, septicemia, diphtheria, and scarlet fever where the pulse is comparatively rapid. In typhus fever, meningitis, and yellow fever the pulse is comparatively low.

A continued fever is one in which the daily variation does not exceed 1.8° Fahrenheit. A remittent fever is one in which the daily variation exceeds 2° Fahrenheit without reaching normal at any time. An intermittent fever is one in which periods of fever and normal or subnormal temperature alternate.

The course of a fever may be divided into three stages: onset, fastigum or acme, and defervescence. Defervescence may be by crisis in which the temperature returns to normal within twenty-four hours. Or, it may be by lysis in which defervescence extends over several days. In these cases the temperature becomes a little lower each day until it returns to normal. Fever which begins abruptly usually ends by crisis.

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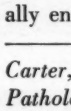
*Carter, Charles F.: Microbiology and Pathology, ed. 1, St. Louis, C. V. Mosby Company, 1939, pages 451-452.*



## *Rheumatoid Arthritis*

Chronic rheumatism is probably the commonest of all the disabling diseases of the adult population. It receives relatively little attention because the disease is seldom fatal. Of all the diseases, it cripples most and kills the fewest.

Only five per cent of rheumatic cases are completely disabled. The disease is much more common among the poor than the well-to-do. It is a disease that increases in prevalence and degree with age. And since the average life span is being increased yearly chronic rheumatism promises to become quite a medical, social, and economic factor in human welfare.

Rheumatoid arthritis is one of the most prevalent forms of rheumatism. The affliction is characterized by swelling, pain, and stiffening of the joints. There is a slowly progressive involvement that results in ankylosis and spondylosis. The disease may begin insidiously or abruptly as a painful swelling of the joints. It is sluggish and often manifests remission. Recurrences are the rule with the cyclic bouts eventually resulting in deformity and disability.

Patients are usually undernourished and underweight. It is thought that the disease may be caused by an increase in body requirements rather than a deficiency in the diet. The disease is one of young adults, often beginning between 30 and 35 years of age and continuing throughout life. Women are much more frequently affected than men. Often the symptoms first appear during menopause. States of anxiety or mental stress may precipitate an initial attack or a recurrence of the disease.

Often the patient with rheumatoid arthritis will give a history of some type of focal, chronic infection like sinusitis, chronic tonsillitis, or abscesses of the roots of the teeth. Today it is believed that these foci do not play the primary role as causes of rheumatoid arthritis. They may play a secondary role in the disease and only temporary benefit may be secured by surgical removal of the foci of infection.

Ideally, these patients should be sent to a warm, dry climate such as Arizona or Southern California. They should go at the first appearance of the symptoms. There is no better preventive treatment. Hydrotherapy and physiotherapy are also of real assistance.

In the light of present evidence efforts are being made not so much to prevent the disease but rather to prevent recurrences and ameliorate the

ravages and deformities that are produced by the disease. Once the disease is well established the problems to be dealt with are: maintenance of muscular tone, prevention of ankylosis, and prevention of deformity.

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*Smillie, Wilson G.: Preventive Medicine and Public Health, New York, The MacMillan Company*, 1946, *pages* 449-452.

### *Sterilization of Women — Indications*

The problem of sterilization of women is receiving greater interest in modern scientific procedure. Often it is a problem that cannot be decided on the basis of only one opinion. Therefore, it is wise to consult the physician, obstetrician, internist, neurologist, or psychiatrist in many of the cases. And, too, the legal aspect should be considered, as state laws vary widely.

Most medical men agree that there are some definite indications for sterilization. In general they are conditions which, if complicated by pregnancy, would be made seriously worse because of the added strain of pregnancy. Severe forms of heart disease, active pulmonary tuberculosis, severe kidney disease, severe diabetes, certain forms of insanity (dementia praecox, maniac depressive psychosis, feeblemindedness of the familial type and Huntington's chorea), and hereditary optic atrophy are indications.

Sterilization should be considered in the presence of malignant tumors because pregnancy in some vague way stimulates the development of malignant tissues. The repeated delivery of monstrosities, especially if there seems to be a strong hereditary tendency, is an indication for sterilization.

The difficulty in deciding the need for sterilization lies in accurately determining just how severely the disease has already damaged the individual and how much recovery can be expected from the influence of treatment and time.

There is greater divergence of opinion as to the advisability of sterilization in the milder forms of heart disease and nephritis, inactive pulmonary tuberculosis, mild diabetes, psychoneurotic individuals or those who have recovered from psychoses of minor forms.

The hazard in the conditions of lesser severity is not so much that the complication will make the pregnancy unsafe but that the strain of pregnancy will influence adversely the medical condition present at the time of conception.

It is noted that many patients with early pulmonary tuberculosis go through a normal pregnancy without serious advancement of the disease. However, immediately after birth of the baby the disease will become widespread.

A diabetic who is able to get along quite normally on average doses of insulin may be found to be uncontrollable when the complex changes in the function of the ductless glands which accompany pregnancy take place.

Frequently there are various combinations of physical and mental defects which collectively would indicate sterilization but if taken by themselves would not warrant the procedure.

Some groups of nonmedical persons believe that sterilization should be required for certain conditions. From the medical point of view sterilization for these conditions is not required, although it might be indicated. The conditions frequently cited are: insanity or epilepsy in the family, economic insecurity especially if there are two or more children, healed tuberculosis, well compensated heart disease of minor severity, delivery of a deformed baby without family history of similar incidence, alcoholism or other forms of drug addiction in either parent and criminal history.

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*Falls, Frederick H.: Operations to Produce Sterility: Medicolegal Implications, American Practitioner* 1:479-488 (*May*) 1947.

### *Warts*

Much consternation is caused by so-called warts in teen-age young people. Warts are small elevations on the skin of the hands, feet, and face. In form, the elevations may be irregular, round or oval, rough or smooth.

The wart is referred to as verruca vulgaris. There is no scientific evidence to support the popular belief that touching toads causes warts.

The wart is really a skin tumor, an overgrowth of epidermal tissue composed of normal adult and fully formed cells. These cells are derived from the germinative layer of the epidermis of the cuticle. The overgrowth is thought to be a response to a stimulus arising from the invasion of a virus into a vulnerable site in the epidermis.

Because they differ from other cellular growths in many fundamental respects warts are considered as a special group of tumors.

There are five distinct differences between warts and other tumors. These are: delineation of territory occupied, absence of a protective zone about the wart, absence of blood vessels within the wart, intrinsic growth control, and the ability of the wart to disappear spontaneously.

A wart is an epidermal structure which arises within the epidermis and expands in depth and periphery therein. It does not break through the thin dividing line of demarcation between the epidermis and the underlying skin.

Unless infectious agents or foreign substances become deposited in the tissue of a wart, there is no protective zone of cellular elements of the blood stream and local tissue components.

Inasmuch as a wart has no blood vessels, it probably receives its nourishment through the cutaneous membrane interposed between the growth and the engorgement of capillary loops usually found directly beneath the wart in the true skin.

Like normal tissue, warts seem to have some growth control substance. When they reach a varying, unpredictable size, they remain stationary in size. This growth control is not found in any other type of tumor formation.

And finally, warts have the striking ability to disappear almost spontaneously. This often occurs so quickly and unobtrusively that the possessor of the wart is astonished.

Most commonly warts are found on the hands, feet, and the face. On the soles of the feet they are termed plantar warts.

On the hands warts are generally found on the back and fingers. The phalanx bearing the nail is usually affected. This localization is important as the nail matrix is often invaded, causing deformed nails while the growth is present. However, even the nail changes disappear after the wart is gone. On the face, warts occur usually as small round tumors.

Past middle age warts are infrequent. And, too, they are infrequent on the large surfaces of the body. In the colored races they are seldom seen. Often they are resistant to all types of treatment and tend to recur even after thorough removal.

It seems that warts are communicable to susceptible individuals. There are many avenues of approach in dealing with them including electric drying currents, application of radiant energy from roentgen rays or radium, and the use of tissue extracts obtained from the warts themselves.

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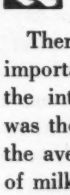
*Hollander, Lester*: *The Ordinary Wart, Hygeia* 25:370-371 (*May*) 1947.



### *Maternal Diet*

There is increasing evidence of the importance of the maternal diet to the intra-uterine fetus. Formerly it was thought that for most women in the average income group one quart of milk added daily to a normal diet would meet body needs during pregnancy. This is not entirely satisfactory as many patients on this routine show definite inadequacies.

There is little doubt that the weight, length, vitality, and rate of ossification of the fetus can be favorably influenced by the amount of protein in the maternal diet. An intake of 85 grams daily is optimum. A large portion of this should be of animal derivation.

Vitamin K given to the mother in labor or in the last few weeks of pregnancy has been definitely shown to reduce the physiologic hypoprothrombinemia of the newborn.

Calcium-phosphorus-vitamin D relationship of the mother and fetus has been recognized for many years. In cases of deficient intake the burden of decalcification is usually placed on the bones of the mother. However, intrauterine rickets does occur in spite of this decalcification.

Vitamin B deficiency as evidenced by beri-beri is recognized as a factor tending to increase the incidence of stillbirths.

Fetuses from iron deficient mothers are often found to develop anemia within the first year of life even though they are almost uniformly born with normal hemoglobin levels.

There is no recognized standard level for fat and carbohydrate intake during pregnancy. Despite general opinion there is no evidence to show that the baby is altered in weight, length, or vitality by excess caloric intake so long as the diet is kept above actual starvation levels.

The treatment of chronic constipation during pregnancy bears an important relationship in the effect of the maternal diet on the fetus. Constipation is a frequent condition during pregnancy and should not be treated with mineral oil unless absolutely necessary because of the probable interference with the absorption of oil-soluble dietary essentials.

Iron and calcium should be given the mother during pregnancy. Vitamin D should be given in the winter months daily in the least expensive form in adequate dosage. These precautions will give the infant a chance for better general health as well as favorable conditions for sound dental structures.

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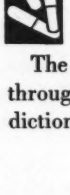
*Sheffery, J. B. and Dill, L. V.*: *The Effect of the Maternal Diet on the Intra-Uterine Fetus, The Medical Clinics of North America* 31:696-699 (*May*) 1947.



### *Metopon Hydrochloride*

The National Research Council through its Committee on Drug Addiction established a coordinated program to study drug addiction. Also, research was to be conducted for a nonaddicting, pain-relieving drug comparable to morphine. This program was started in 1929 with funds provided by the Rockefeller Foundation.

From the results of chemical, pharmacologic, and clinical studies carried on by several participating organizations a new drug will soon be available. It is metopon hydrochloride, a new morphine derivative.

Chemically, metopon is a morphine derivative. Pharmacologically, it is qualitatively like morphine even in its properties of tolerance and liability to addiction. However, quantitatively metopon differs from morphine.

Its analgesic effectiveness is at least double that of morphine and its duration of action closely approximates that of morphine. It is nearly devoid of emetic action. Tolerance to metopon appears to develop more slowly and to disappear more quickly. Physical dependence upon the drug develops more slowly than with morphine.

Therapeutic analgesic doses produce little or no respiratory depression. There is much less mental dullness than with the use of morphine. The effectiveness of oral administration is relatively high.

Because of its superior quantitative effects metopon for the treatment of chronic suffering from cancer is in a class by itself. In fact, it is being manufactured and marketed exclusively for that purpose.

It will be available only in capsule form. Bottles will contain 100 capsules, each of 3 milligrams of metopon. To secure the drug, physicians will have to present signed statements relative to the patients for whom it is to be used. The drug will be distributed for no other purpose than the oral administration for chronic relief of pain in cancer cases.

The dose is 6 to 9 milligrams to be repeated only on recurrence of pain, thereby avoiding by-the-clock administration. Tolerance to any narcotic drug develops more rapidly with excessive dosages and under regular by-the-clock administration. Pain, therefore, should be the only guide as to

time of administration and level of dosage.

Under this procedure beneficial results will be gained from this drug. It will be controlled, as the distribution will be supervised by the American Cancer Society and the Drug Addiction Committee of the National Research Council.

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*Editorial*: *Metopon Hydrochloride*, *J.A.M.A.* 134:291-292 (*May* 17) 1947.

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# Contra-Angles

### *Chicken in the Red*

I am growing weary of paying $4 or $5 for a banquet dinner that isn't as good as something that you can get at Nick the Greek's for seventy-five cents. The clammy-cold vegetables, the listless salads, the hacked and mutilated desserts are bad. But worse is the inevitable chicken that was cooked the day before and warmed over for the "feast." (Cooked, that is, on the outside and bright red in the middle.)

Virtually every hotel in the country takes advantage of the people who come to arrange for a banquet. The hotels know that people come for the meeting and from such knowing, they are sure they can turn out poor quality food without too much criticism. If the same dreary dinners were offered at $4 or $5 in the regular dining rooms of such hotels, the squawking would be terrific. It is hard to reconcile our gullibility in paying $5 a plate for a banquet with the squawking like-the-devil we would do if we were handed dinner checks for $5 individually. The hotels, of course, are charging for the banquet space and for the time that it is used after the meal by the speech makers.

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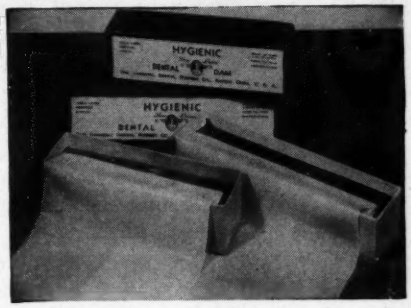


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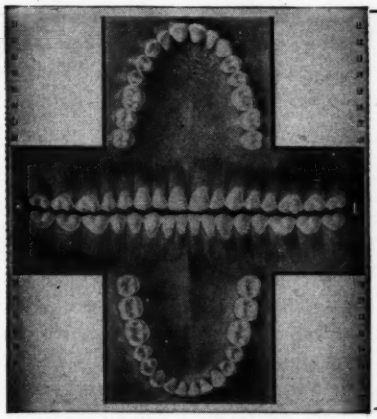

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ter off if they made no effort whatsoever to conduct a dinner meeting and let everyone shift for himself. In the evening the meeting could be convened in a comfortable hall; and if it was necessary to make a charge to cover the cost of hall rent, no one should kick too much.

There was a time when a banquet was what the name implied—something unusual, something touched at least lightly with the exotic, something different from the ordinary run-of-the-mine food. Now a banquet has come to mean cold canned peas, chicken croquettes (or chicken swimming in its own hemoglobin), dismal salad, and watery mashed potatoes, usually not hot. With the tendency of the American people to conduct more and more of their affairs over banquet tables, it is quite natural that the hotels should take advantage of the situation. If a few organizations would have the courage to conduct non-eating meetings, it would not take long before the hotels got wise and began to give people their money's worth at banquets.

### *Sitting in the Shade*

I have a neighbor in the country who violates all the laws of nutrition. But, paradoxically, he seems never to be sick. Without being too much of a snooper, I have tried to evaluate his dietary. I find that it consists of white bread, eggs, cocoa, and an occasional potato. So far as I know, fruit and vegetables are unknown to him. Oh, yes, he does know about them; but certainly he never uses them, even when they are growing free in the ground nearby. Neither does he make much of an outlay for meat. So far as I can see, he is lacking in nearly all protective foods.

Well, why doesn't he have colds and aches and pains and lowered susceptibility generally? One reason is, perhaps, that he is free from tensions. He has nothing to do with human associates; therefore, he has nothing to do with personal hostilities. He is, in fact, a hermit who enjoys conversations with himself better than he does conversing with anyone else. Another reason for his robustness is, possibly, his generous share of fresh air and


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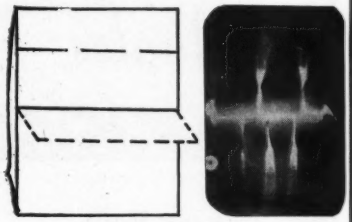

Note Position of Tab - Center of Film Holder for Bite Wings

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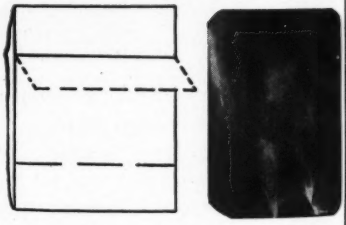

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Thursday afternoon at three, this dentist meets a new patient, and every new patient is a new experience.

Building his patient's good will and retaining her confidence depend on several factors . . . but no other influence is as vital as the control of the patient's fear, apprehension, and discomfiture.

McKesson nitrous oxide analgesia equipment (either the Easor or the Euthesor) builds patient confidence and loyalty because it eliminates the strongest barrier to practice volume—the patient's fear of operative pain.

*We shall be glad to tell you what McKesson analgesia is doing for other dentists and can do for you.*

NARGRAF THE McKESSON APPLIANCE CO. TOLEDO O. U.S.A. EUTHESOR

EASOR


sunshine. The weather means little to him; he is outside in all kinds of it. Then, again, he has plenty of rest. He is in bed before dark and up at 5 o'clock in the morning. Although he never heard of Thoreau, who sat alone by Walden Pond, sufficient unto himself, he is an heir to the philosophy of Thoreau—the philosophy of solitude, of time for contemplation, of freedom from stresses and tensions.

My old neighbor in the country will likely never die from coronary disease or from hypertension. He likes to sit in the shade too well. He likes to sit in the gloaming, talking to himself gently. He likes his own company at all times. He has no competitive pressures; no desire to keep pace with anyone else; no ambitions unfulfilled.

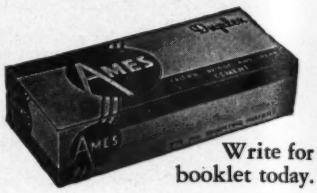
### *A Touch of Depression Needed*

Whoever suggests that what this country needs is a touch of depression can expect to have the curses of the Associations of Commerce thrown upon his head. It isn't considered politic or patriotic to advocate a slight economic set-back. But even if it isn't *popular*, I will give my theories of why it *might be good*.

At the present moment we are at the height, at least we hope it is the height, of inflation. With all government restrictions removed and with capital and labor sleeping together unblushingly, the American people are caught in the rapid spiraling of all prices. When the representatives of the United States Steel Corporation and the other big businesses accepted the wage demands of John L. Lewis without even the superficial semblances of protesting, extremely significant things happened in contemporary economic life. Their acceptance meant that the economic barons and tycoons were more interested in immediate profits for themselves in the next two years than in the long-term welfare of the country. High profits now; soup lines later.

Previously, when Mr. Lewis made demands, some of the representatives of management balked, disagreed, and stated their objections. It seems


**Stronger and Tougher**

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Many dentists have sent in the coupon below and found out why BS Polishers are preferred over many others. They can readily understand why this soft, flexible rubber polisher makes a patient feel safe and comfortable, also why it is easy for it to clean and polish every tooth to a lustre brightness. Why don't you find out these facts for yourself? Send the coupon in now!

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ironic that immediately after the passage of the Taft-Hartley bill over the President's veto, big business immediately became silent and accepted the demands of labor.

Prices are going up. People will, if they are wise, soon begin to refuse to buy even if they have the money with which to buy. With every refusal, business will slow down more and more. The people out on the terminal of the economic line, the ultimate buyers, are the ones who can slow up everything down the line through the retailer, through the wholesaler, through the distributor, through the manufacturer, through the processor of the raw materials, down to the primary producer.

People are beginning to object to unfair prices. There are signs of a slowing-down of economic activity. More and more we will hear, "That costs too much." Apparently what we need is a little fear thrown into all of us, the fear of another depression. When we have that fear, prices will quickly find lower levels; people will begin to work a little harder and a little more efficiently and to give value received; and when that day comes, we will *all* be better off. Unfortunately, once the spiral begins downward, it isn't always easy to control it. At the bottom lies the same kind of chaos that we faced fifteen years ago.

But there is also chaos that comes from inflation. Thousands and thousands of people are now being pressed too hard and cannot buy even the necessities of life at the prices demanded. Suffering comes both from inflation and deflation. Sociologists and economists have pointed out what happens at the lower end of the economic swing; they seldom talk about what happens at the top of the economic spiral in terms of human misery and human suffering.

### *Television*

I have been impressed with an extremely intelligent editorial[1] that recently appeared in *Current Researches in Anesthesia and Analgesia.* Doctor Howard Dittrick, who wrote the editorial, describes the advantages

[1]Dittrick, Howard: Teaching by Television, Current Researches in Anesthesia and Analgesia 26:132 (May-June) 1947.

## CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 402 *and* 403)

Form to be Used by Contributors

To: Clinical and Laboratory Suggestions Editor
DENTAL DIGEST
708 Church Street
Evanston, Illinois

From:_____

_____

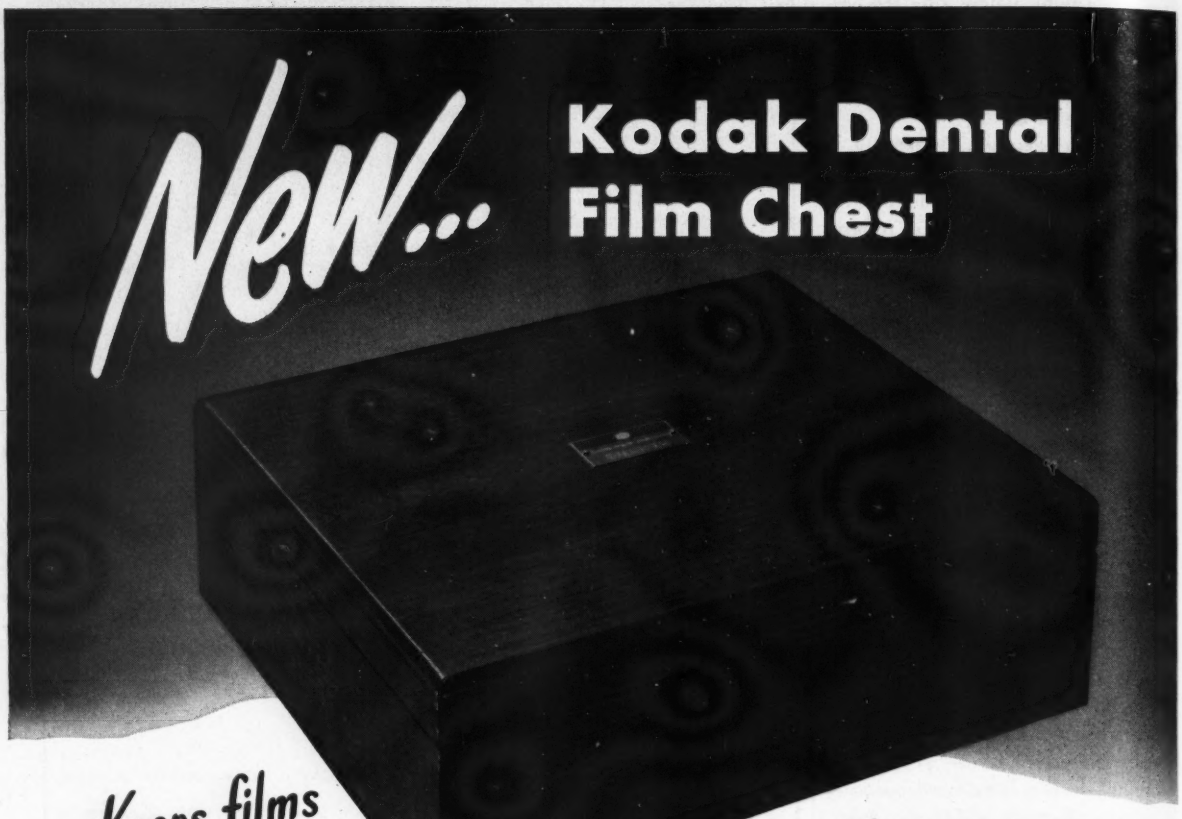
Subject:_____

Explanation of Procedure:

Sketch:

$10 will be paid to author on publication of accepted suggestions.

# New... Kodak Dental Film Chest



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**Here's a special container** made for storage of dentists' stock quantities of x-ray films. It may be placed anywhere in the office that is cool, dry, and free from contaminating fumes or gases.

**Generous-sized** The chest measures 11½x9½x3½ inches inside and holds the following films in packages: *For intra-oral radiography*—Periapical, Bite-Wing, and Occlusal. *For extra-oral and facial-profile radiography*—8x10- and 5x7-inch sheet films.

**Lead-lined** The chest may be kept safely near the x-ray unit. Body and cover are lined with .040-inch sheet lead to absorb the usual amount of radiation encountered in the dental office.

**Convenient—Attractive** Cover is durably hinged . . . has finger groove to facilitate lifting . . . opens wide for easy access to contents. Seasoned hardwood construction. Polished mahogany finish. Blends with every type of furnishings . . . looks well in any office.

*Order from your regular dental dealer*

**INSIDE VIEW of new Kodak Dental Film Chest. X-ray absorbing lead lining of the box and lid overlaps to prevent entry of stray radiation at cover seam.**

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***X-ray Division,* Rochester 4, N. Y.**

Kodak

*A Real Need Fulfilled*

# PSYCHOBIOLOGIC FOUNDATIONS IN DENTISTRY

*by* EDWARD J. RYAN, B.S., D.D.S., Editor of *Oral Hygiene* and *Dental Digest*, Past President of the Chicago Dental Society.

**EMPHASIZES PRACTICAL ASPECTS** This important book gives the PRACTICING DENTIST a short account, *for the first time*, of what he needs to know to institute agreeable dentist-patient relationships. WHAT HANDICAPS DENTISTS? Dentists' services are appreciated and are considered indispensable but it is also true that most people *do not like* their dental experiences. Dentists know that tremendous handicaps to a satisfactory interpersonal relationship with patients arise from these patients' fears, anxieties, phobias, and other tension states. It is absolutely necessary for the development of a successful clinical practice for the dentist to OVERCOME THESE HANDICAPS.

**COMPLETE AND ORIGINAL** "This is a very unusual book to come from the pen of a dentist. It is also unusual to follow the logical, forward thinking of the writer. Every dentist and physician can read this book with interest and profit. It marks the beginning of a correlation of dentistry with psychosomatic medicine, and the author presents an excellent approach to the recognition that dentists can profit greatly through at least some understanding of the underlying dynamic psychology of their patients."—*Journal of the American Medical Association.*

PRICE: $3.00

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**CHARLES C THOMAS • PUBLISHER 301-327 East Lawrence Avenue SPRINGFIELD • ILLINOIS**

that may be had in medical teaching by television. Here is what he said:

"Advances in anesthesiology have been demonstrated by much the same methods as those used in teaching surgery. The trend in newer hospitals has been toward large impressive amphitheaters for teaching purposes. These may become obsolete and may be replaced by mechanical apparatus affording more accurate and efficient visual presentation.

"Teaching of anesthesiology has progressed steadily along with instruction in surgery. The preceptor method was followed by the didactic. Reproductions of the Agnew clinic in Philadelphia (c. 1880) show the professor operating in a large amphitheater and at the same time discussing surgical and anesthetic problems involved. This teaching method reached its climax in a theater I saw in 1928 at Padua, where students viewed the operation through a ceiling dome of glass over the table, and heard the surgeon's remarks by microphone. There was inevitably temporary obstruction of vision even in such perfect arrangements. There came a return to smaller units with necessarily fewer students, but with better vision. A forward advance was the use of movie films which provided excellent instruction but required time and labor to prepare.

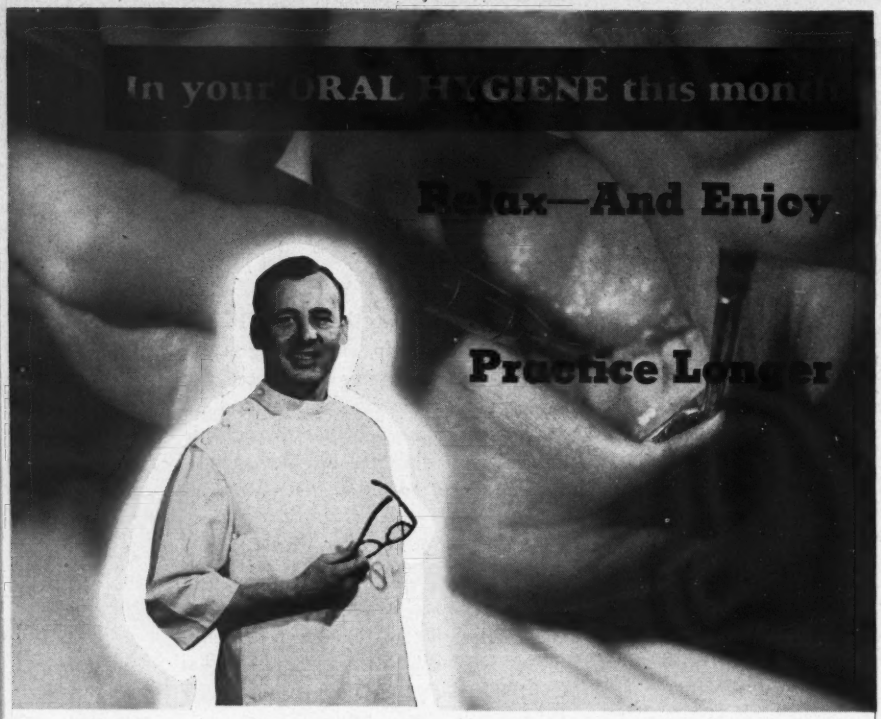
"When chloroform, ether and nitrous oxide were the only anesthetic agents used, simpler methods of demonstration were adequate. With the advent of spinal, caudal or intravenous routes, or even refinements of inhalation anesthesia the techniques became more complicated and required more strict attention on the part of the student. Much of this teaching has been carried on about the head of the patient. However, presence of students on the floor of the operating room is undesirable, and at times disconcerting to the surgeon.

"Now comes television. It may do away with the surgical amphitheater. Recently an eye surgeon was removing a tumor of the eyeball under pentothal and local anesthesia. Under such conditions the operation can be seen by only the surgeon and his assistant. I sat in a room in a building several blocks away and watched in comfort each step in the technique, sharply defined and ten times enlarged. Meanwhile over the sound waves came the surgeon's comment on the procedure. The demonstration of the teaching value was perfect.

"Then the surgeon called for the electric knife. Blackout ensued. This kink will be ironed out by able engineers studying interferences. Architects and surgeons may then have to consider a readjustment of hospital plans in which the amphitheater with direct vision will be replaced by suitable viewing rooms with one or more receiving sets equipped with television screens.

"Copernicus was right. The world does move."

Many dentists reading these words must remember the hard times they had to get anything out of the table clinics at most meetings. The clinics are too crowded, the visibility is bad, acoustics are worse, and the clinician is subject to constant interruptions




How *can* you relax? . . . Doctor Samuel Dick doesn't give a recipe. He tells in humorous vein some of the reasons why the practice of dentistry is not conducive to relaxation. You will enjoy reading his story of what *can* happen in a dentist's day . . . May it never happen to you!

★ ★ ★

Are you working too hard under tension? . . . Then please, for your health's sake, turn to page 1368 and read the article, "How to Avoid Heart Disease." N. C. Gilbert, M.D., wrote it especially for dentists, hoping to warn those who work under continual strain.

★ ★ ★

"Orthodontics for All" — Every dentist should know something of orthodontia, says Eugene L. Gottlieb, D.D.S., and should be able to recognize orthodontic conditions which cause malocclusion, malcontact, and malfunction. These conditions sometimes escape the general practitioner and natural teeth are needlessly damaged or lost.

"There is no valid reason which compels orthodontics to occupy an almost monopolistic position in dental practice," he writes. "The fact that it continues to do so is the responsibility of dentists as a whole and of dental educators; the dentists, who are almost completely passive and submissive to the situation and the dental educators who solve their problem by avoiding it."

★ ★ ★

"Dental Health is a Public Problem"—and you'll agree with Doctor Frank C. Cady that laymen could help immeasurably in instituting a nationwide educational program. Doctor Cady urges organized dentistry to take the initiative in arousing public action.

★ ★ ★

Do you handle your patients with "kid gloves" or give them the "shock treatment"? Doctor Harry C. Peake advocates the latter method as a means of gaining greater patient cooperation . . . You may not agree.

★ ★ ★

"What's Wrong With the Clinician?" If you've been conducting a clinic here and there, don't answer that question until you've read Doctor Furman N. Moore's brief and frank account of some of the clinics he's attended.

by members of the audience. It would be fine if we could sit comfortably in an auditorium and watch a television broadcast of dental procedures; and if we could see the minute operative details and hear clearly the descriptions of the procedures. It won't be many years before enterprising dental societies will be substituting television broadcasts for the present kind of clinical presentations.

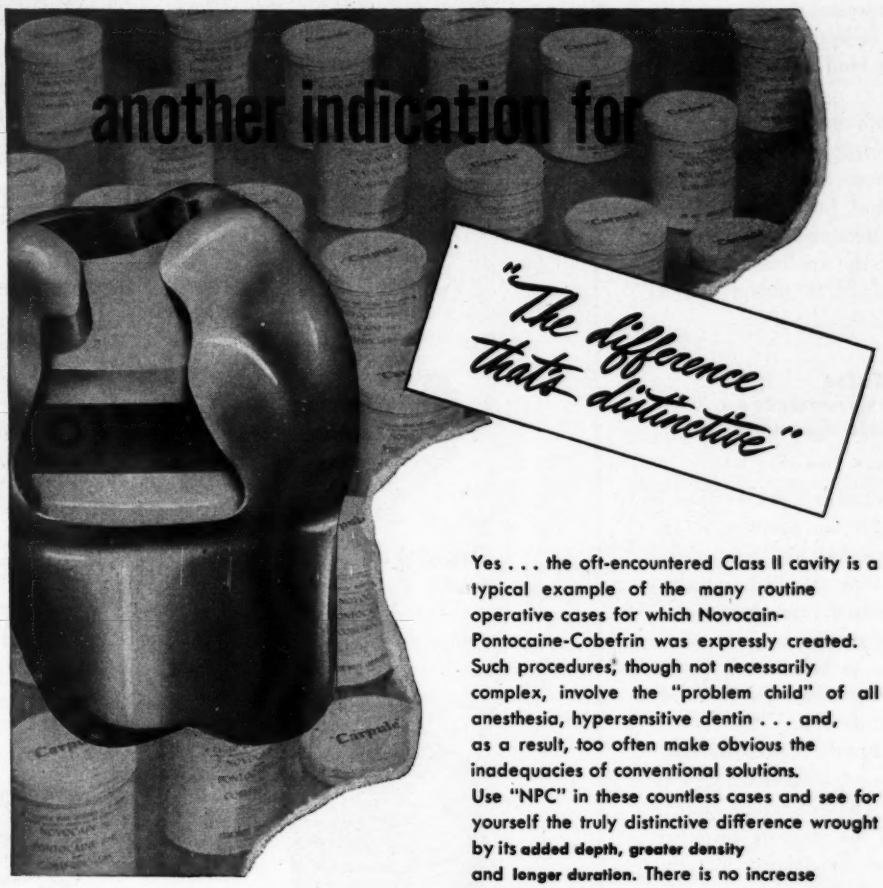
### *All-Star Cast*

Anyone who practices in the Chicago area who doesn't avail himself of the opportunities of attending some of the postgraduate evening courses at the University of Illinois, College of Dentistry, is short-changing himself in opportunity. I have recently completed a six-week course in the pathology and physiology of the periodontal tissues. This course was given by an all-star cast: Balint Orban, Isaac Schour, Joseph P. Weinmann, and Harry Sicher. Anyone who is interested in dynamic biology and the clear presentation of fundamental and background material should take this course.

We dentists have been too content to outline our treatments on fragile and incomplete background knowledge. We have been so concerned with the *treatment* of periodontal disease, concentrating on scaler types, goo, and medicaments to squirt into pockets and on surgical and electrosurgical devices, that we have ignored the fundamental nature of periodontal disease. Periodontal disease, like all disease, is not monocausal nor can it be treated by a single specific method or specific chemo-agent.

Each person reacts to his disease differently and each person must be approached in treatment differently. Dentistry will advance only upon the broad highway of biology. Whatever technique is not based on sound biology is certain to fail. We are mechanics but we are mechanics building and working on human tissue; and human tissue is not static. It is forever under the stresses and strains, the ebbs and flows of the anabolic and catabolic phases.

We are apt to look at models, at photographs, at x-rays and think that




Yes . . . the oft-encountered Class II cavity is a typical example of the many routine operative cases for which Novocain-Pontocaine-Cobefrin was expressly created. Such procedures, though not necessarily complex, involve the "problem child" of all anesthesia, hypersensitive dentin . . . and, as a result, too often make obvious the inadequacies of conventional solutions. Use "NPC" in these countless cases and see for yourself the truly distinctive difference wrought by its **added depth, greater density** and **longer duration.** There is no increase in vasoconstrictor content . . . nor is there a perceptible decrease in patient toleration. In short, "NPC" is the anesthetic answer you have so long sought.

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they represent disease. Such records are merely two-dimensional. The third dimension is never recorded in anything outside the organism itself. That third dimensional thing is the human personality behind the disease process; it expresses the disease process and must be approached and evaluated in any kind of sensible treatment.

Whenever we can get together well-trained and inspired biologists such as Orban, Schour, Weinmann, Sicher, and others and have them present courses separately or together, we are on the way to the application of fundamental biology to dental clinical progress.—E.J.R.

### *Acrylic Moist Chamber Spectacles and Pinhole Glasses*

(*Continued from page* 391)

tion of the wax model, dental stone is poured through the opening in the frame where the lens has been removed. Enough stone should be used to make it flush with the rim of the frame. The temple of the frame is removed and the model is half-flasked by investing it in plaster of paris. It is then tinfoiled before being full-flasked.

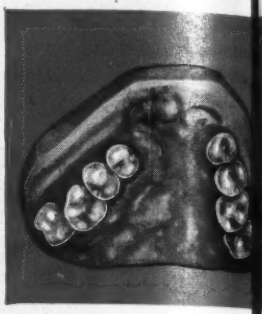
After the plaster has hardened, the flasks are separated; the wax is removed with boiling water; and the other half of the flask is tinfoiled. Then, clear acrylic denture material is pressed into position to take the place of the wax, and the flask is again closed and boiled for thirty minutes. On cooling, the case is removed from the flask; the stone and plaster are removed from the appliance; and the latter is cleaned, pumiced, and polished.

5. Replacing Lens: To permit the replacement of the lens in the frame, the appliance is cut through cleanly along the line where the temple of the frame will rest against the appliance. The lens and temple are replaced. The cut is sealed by a relining acrylic which now will also cover the temple, if so desired.

6. Trial Fitting: The spectacles are now placed on the patient's face. Any poorly approximated areas may be filled in with relining acrylic or ground down as the case may be. A loose fit can usually be remedied by adjusting the fit of the temple around the ear.

### *Pinhole Glasses*

A further use for this type of appliance was suggested by the need for pinhole glasses in the postoperative treatment of a case of retinal detachment. The ordinary commercial type of pinhole does not fit accurately to the face and, as a result, permits light leaks to occur. Such leaks may be completely avoided by the accurate apposition of acrylic chambers to the skin around the eyes. The acrylic can easily be made opaque by the addition of a little charcoal powder. The area where the lens is situated in the moist chamber is replaced by acrylic in which the pinhole is drilled on completion of the appliance. If a large enough flask is obtainable, both pinhole chambers

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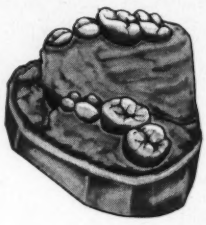
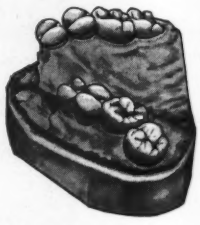
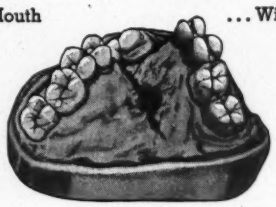


Model of Original Mouth



...With Cast Crowns in Place



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* Number Nineteen of a Series

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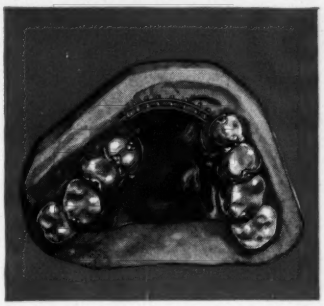

ough this girl with a cleft palate was only 15 years old, she had had previous restorations. Each one lacked retention and balance to such gree that she had developed bad speech habits in an effort to hold nwieldy appliances in place with her tongue and cheek muscles. present NEY-ORO G-3 case was designed on the Ney Surveyor and ood balance and positive stability. The girl's speech has improved eably, as has her appearance, and this improvement has gone far to nating a pronounced inferiority complex resulting from the inade- ies of previous appliances.

case appeared to be entirely impractical for a cast restoration because molars were only partially erupted, and the bicuspids were conical in e and had no undercuts in which clasp arms could be placed for tion. The first step was to make cast gold crowns for the four bicus- preforming the undercuts which would be used later in designing partial. The clasps on the bicuspids provided all the retention neces- stabilizer rests were placed on the distal of the molars to help balance nterior overlay. The sensation of comfort and "lightness" which the nt now enjoys is derived largely from the Surveyor System design com- l with the "cast-to-fit" qualities obtainable only with a gold denture.

NEY GOLD

FOR PARTIAL DENTURES
NEY-ORO G-3
PALINEY #4
NEY-ORO #5
NEY-ORO #6

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can be prepared at the same time; otherwise, the nosepiece of the frame can be cut with a separating disk and both halves of the glasses individually prepared and then reunited by soldering the nosepiece.

### *Comment*

Further adaptations for and changes in the appliances may suggest themselves in individual cases. —From *The Bulletin of the U. S. Army Medical Department* 4:462-465 (October) 1946.

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*See page* 373 D.D.8

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# Out of some cold figures, came a story to warm America's heart

NOT LONG AGO, the Secretary of the United States Treasury studied a figure-covered sheet of paper.

The figures revealed a steady, powerful upswing in the sale of U. S. Savings Bonds, and an equally steady decrease in Bond redemptions.

But to the Secretary, they revealed a good deal more than that, and Mr. Snyder spoke his mind:

"After the Victory Loan, sales of U. S. Savings Bonds went down—redemptions went up. And that was only natural and human.

"It was natural and human—but it was also dangerous. For suppose this trend had continued. Suppose that, in this period of reconversion, some 80 million Americans had decided not only to stop saving, but to spend the $40 billion which they had *already* put aside in Series E, F & G Savings Bonds. The picture which *that* conjures up is not a pretty one!

"But the trend did NOT continue.

"Early last fall, the magazines of this country—nearly a thousand of them, acting together—started an advertising campaign on Bonds. This, added to the continuing support of other media and advertisers, gave the American people the facts . . . told them why it was important to buy and hold U. S. Savings Bonds.

"The figures on this sheet tell how the American people responded—and mighty good reading it makes.

"Once more, it has been clearly proved that when you give Americans the facts, you can then ask them for action—and *you'll get it!*"

**What do the figures show?**

On Mr. Snyder's sheet were some very interesting figures.

They showed that sales of Savings Bonds went from $494 million in last September to $519 million in October and kept climbing steadily until, in January of this year, they reached a new postwar high:

**In January, 1947, Americans put nearly a billion dollars in Savings Bonds. And that trend is continuing.**

The figures show that millions of Americans have realized this fact: there is no safer, surer way on earth to get the things you want than buying U. S. Savings Bonds regularly.

**Save the easy, automatic way—with U.S. Savings Bonds**

*Contributed by this magazine in co-operation with the Magazine Publishers of America as a public service.*

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*See page* 384 D.D.8

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*See page* 408 D.D.8

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